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THE MEDITERRANEAN
PILOT. VOL. V.
FIRST EDITION.
1915.

CAUTION WHEN APPROACHING BRITISH PORTS.

(To be inserted inside cover of all Sailing Directions.)

PART I.—CLOSING OF PORTS.

(1) My Lords Commissioners of the Admiralty having taken into consideration the fact that it may be necessary to forbid all entrance to certain ports of the Empire, this is to give Notice that on approaching the shores of the United Kingdom, or any part of the British Empire, a sharp lookout should be kept for the signals described in the following paragraph, and for the vessels mentioned in paragraph (4), Part II., of this Notice, and the distinguishing and other signals made by them. In the event of such signals being displayed, the port should be approached with great caution, as it may be apprehended that obstructions may exist.

(2) If entrance to a port is prohibited, three *red* vertical lights by night, or three *red* vertical balls by day, will be exhibited in some conspicuous position in or near to its approach, which signals will also be shown by the vessels indicated in paragraph (4), Part II., of this Notice.

If these signals are displayed, vessels must either proceed to the position marked "Examination Anchorage" on the Admiralty Charts and anchor there, or keep the sea.

PART II.—EXAMINATION SERVICE.

(3) Under certain circumstances, it may become necessary to take special measures to examine vessels desiring to enter the ports or localities at home or abroad, referred to in Notices to Mariners No. 1 of 1915 and subsequent years.

(4) In such case, vessels carrying the distinguishing flags or lights mentioned in paragraph (6) will be charged with the duty of examining ships which desire to enter the ports and of allotting positions in which they shall anchor. If Government vessels, or vessels belonging to the local port authority, are found patrolling in the offing, merchant vessels are advised to communicate with such vessels with a view to obtaining information as to the course on which they should approach the Examination Anchorage. Such communication will not be necessary in cases where the pilot on board has already received this information from the local authorities.

(5) As the institution of the Examination Service at any port will never be publicly advertised, especial care should be taken in approaching the ports, by day or night, to keep a sharp lookout for any vessel carrying the flags or lights mentioned in paragraph (6), and to be ready to "bring to" at once when hailed by her or warned by the firing of a gun or sound rocket.

In entering by night serious delay and risk will be avoided if four efficient all round lamps, two *red* and two *white*, are kept available for use.

(6) By day the distinguishing flags of the Examination Steamer will be a special flag (white and red horizontal surrounded by a blue border) and a blue ensign.

Also, three *red* vertical balls if the port is closed.

By night the steamer will carry: (a) Three *red* vertical lights if the port is closed; (b) three *white* vertical lights if the port is open.

The above lights will be carried in addition to the ordinary navigation lights, and will show an unbroken light around the horizon.

(7) Masters are warned that, when approaching a British port where the Examination Service is in force, they must have the distinguishing signal of their vessel ready to hoist immediately the Examination Steamer makes the signal.

(8) Masters are warned that, before attempting to enter any of these ports when the Examination Service is in force, they must in their own interests strictly obey all instructions as to entry given to them by the Examination Steamer. In the absence of any instructions from the Examination Steamer they must proceed to the position marked "Examination Anchorage" on the Admiralty Charts, and anchor there, or keep the sea.

Whilst at anchor in the Examination Anchorage, Masters are warned that they must not lower any boats (except to avoid accident), communicate with the shore, work cables, move the ship, or permit anyone to leave the ship, without permission from the Examination Steamer.

(9) In case of fog, Masters of vessels are enjoined to approach the Examination Anchorage itself should be approached.

(10) Merchant vessels when approaching British ports are warned against making use of private signals of any description. The use of them will render a vessel liable to be fired at.

(11) The pilots attached to the ports will be acquainted with the signals to be followed.

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(To face Cautionary Notice in all Sailing Directions.)

NOTATIONS OF SUPPLEMENTS AND ANNUAL
SUMMARIES OF NOTICES TO MARINERS
RELATING TO THIS BOOK.

To be filled in by Navigating Officer.

[In Chart Depôts the two first columns are alone to be filled up.]

Title.	Date of Publication and Number.	Whether pasted in or noted in Margins of Book, and Date of each Correction.

40

NOTICE.

HYDROGRAPHIC DEPARTMENT, ADMIRALTY.

Early in each year the information affecting this book, which has been published during the preceding year in the Admiralty Notices to Mariners, is compiled and issued as a separate publication. If a Supplement has been issued during the year, this publication will only include Notices issued since the date of the Supplement. Mariners are advised to procure copies of these publications. They can be obtained gratuitously from the Admiralty Agent or Sub-Agents for the sale of charts on presentation of the coupons on the next page, either personally or by letter. In the latter case the cost of postage must be enclosed.

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Vol. V., 1915.

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Vol. V., 1915.

Supplement to
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during 1924, affecting

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1934

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1935

THE
MEDITERRANEAN PILOT,
VOL. V.

COMPRISING
THE COASTS OF TRIPOLI (LIBIA), EGYPT,
KARAMANIA, CYPRUS, AND SYRIA.

FIRST EDITION, 1915.

ALL BEARINGS ARE TRUE.

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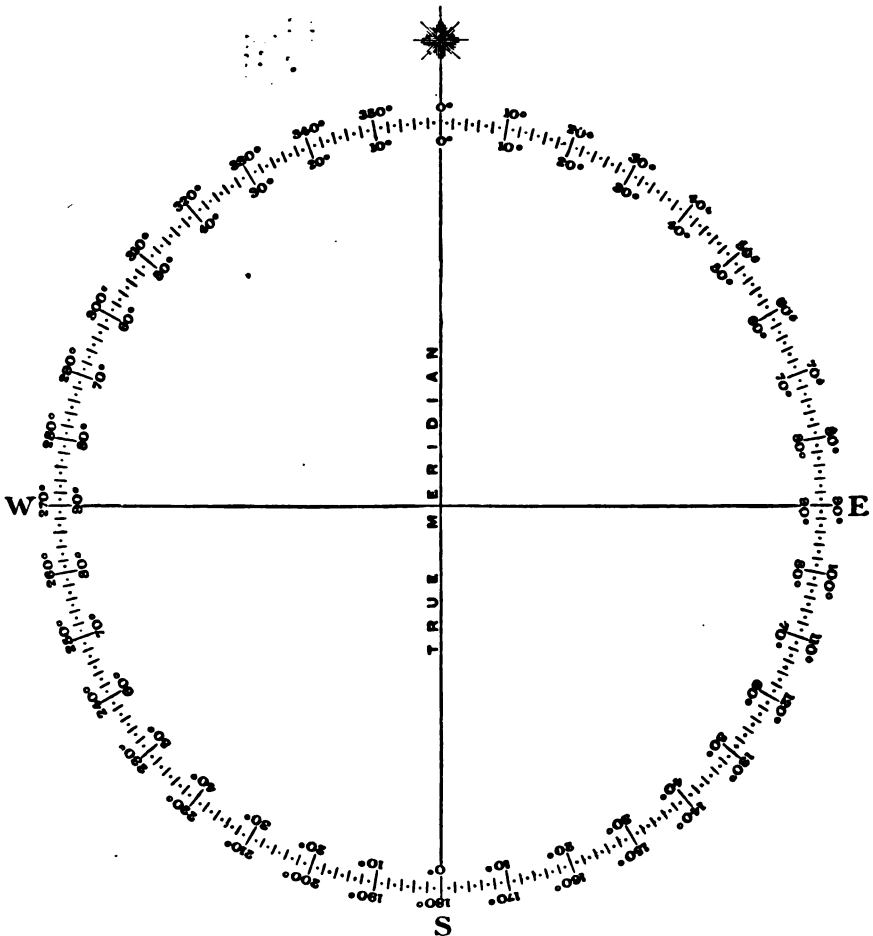
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1915.

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TRUE BEARINGS.

Diagram to facilitate the conversion of True Bearings expressed in degrees of the circle from 0° to 360° into True Bearings expressed in degrees of the quadrant from 0° to 90° .



ADVERTISEMENT TO THE FIRST EDITION.

The *Mediterranean Pilot*, Vol. V., previously part of *Mediterranean Pilot*, Vol. II., contains sailing directions for the coasts of Tripoli (Libia), Egypt, Karamania, the island of Cyprus, and Syria.

The descriptions are chiefly from the Admiralty surveys conducted by Captains Beaufort, Smyth, Graves, Spratt, Commander Mansell, and other officers of the Royal Navy, between the years 1811 and 1898.

The present edition has been prepared by Commander H. S. Penn, R.N.; in it is embodied all the latest information.

All bearings are true, and in degrees from 0° (North) to 360°, measured clockwise.

All details of lights and fog signals have been omitted; for these the Admiralty List of Lights must be consulted.

Mariners and others are invited, in the interests of navigation, to forward to the Hydrographer, Admiralty, London, S.W., any information that may come under their notice, which would be useful for the correction of the charts and other hydrographic publications issued by the British Admiralty; early advice as to newly-discovered dangers, the establishment of or changes in any aids to navigation, is specially requested.

Copies of a form (H 102), on which to render information, can be obtained gratis from the Admiralty chart agent,

Mr. J. D. Potter,
145, Minories, London, E.C.,

or from any of his sub-agents in Great Britain and abroad.

The last Notice to Mariners used in the preparation of this volume is No. 694 of 1915.

J. F. PARRY,
*Captain, R.N.,
and Hydrographer.*

*Hydrographic Department,
Admiralty, London,
23rd September, 1915.*

320146

BIBLIOGRAPHY.

The following books were used in preparing this volume:—

Instructions Nautiques, No. 957, Bassin oriental de la Méditerranée, Vol. I., 1912.

Cyprus, Handbook of; Lukach and Jardine, 1913.

Egyptian Government Almanac, 1915.

Mittelmeer-Handbuch, Teil V.; Die Levante, 1912.

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GLOSSARIES OF WORDS OCCURRING IN THE CHARTS
AND SAILING DIRECTIONS.

ARABIC.

Arabic.	English.	Arabic.	English.
Ab, Abu, Bu -	Father, chief	Kalat, Kelat, Kulat -	Castle
Abiad, Abyad -	White	Kantara -	Bridge
Abyar -	Wells	Karantina -	Quarantine
Adel, Aleb -	Sloping hill	Kasba -	Citadel
Ahmar -	Red (masculine)	Khan -	Inn
Ain -	Fountain	Kibli -	South
Akaba, Acol -	Wilderness	Kothon -	Port
Akhal -	Black	Liman -	Port
Al -	The	Ma, Moye -	Water
Anak -	Cliff	Maghreb -	West
Arish -	Dune	Márabút -	Monument, tomb
Asfal -	Lower	Marsa, Mers, Mersa,	Bay, cove, harbour
Bab -	Narrow strait, gate	Marza -	
Bahr -	River, lake	Masjed -	Mosque
Baida -	Desert	Matla -	East
Balad -	Town, village, land	Médene -	Minaret
Bandera -	Flag	Mina -	Harbour
Beheira, Buhireh -	Lake	Mirjan -	Coral
Beni -	Tribe of Bedawin or other Arabs; mountains	Nahr -	River
Biar, Bir -	Wells, well	Nakhl -	Palm tree
Bogaz -	Entrance channel	Natur -	Tower
Bolis -	Port police	Nebi -	Tomb, prophet
Bosta -	Post office	Rais, Reis -	Captain of a vessel
Burj, Buy -	Castle, fort, tower	Rais el Marsa -	Captain of the port
Bussla -	Compass	Ras -	Cape, point
Duar -	Arab encampment	Sabakat, Sebka -	Salt lake
El -	The	Saghira, Seghir -	Small
Gera -	Lake	Sakiye -	Canal
Gharb -	West	Sarayet Ras el Tin -	Ras el Tin palace
Gumruk -	Custom house	Sarwe -	Cypress
Gunsulato -	Consulate	Sawáhil -	Coastguard
Halat -	Sandbank which dries	Shab -	Rocky shoal
Hamra -	Red (feminine)	Shark -	East
Hassar, Hissar -	Rock	Sherm -	Cove
Ingilyzy -	British	Shmal -	North
Jam, Jamia -	Mosque	Sidi, Sedi -	Tomb
Jebel, Jibel, Gebel -	Mountain, hill, island	Tel, Tell -	Hill
Jezirat -	Island	Tarf -	Cape
Jun -	Bay	Tarsahana -	Arsenal
Junub -	South	Tiligráf -	Telegraph
Kabira, Kebir -	Large	Umm -	Mother
		Wad, Wadi, Wed, Uad -	Valley, river bed, river
		Welled -	Tribe of Arabs
		Zeitun -	Olives

GLOSSARIES OF WORDS OCCURRING IN THE CHARTS AND
SAILING DIRECTIONS—*continued.*

GREEK.

Greek.	English.	Greek.	English.
Agios, -a, -on, Hagios, Ayia, Ayios	Holy, sacred, saint	Lithos - - -	Stone
Akropolis - -	Citadel, fortress	Megale, Megalo, Megas	Great
Akroterion - -	Cape	Melaine, Melan, - Melas	Black
Anemo - - -	Wind	Meses - - -	North-east
Apeliotes - -	East	Metron - - -	Measure
Aspros, -a, -on	White	Mikros, -a, -on	Little
Aster, Astron -	Star	Mulos - - -	Mill
Boreas, Borras	North	Naos - - -	Church, temple
Bounon - - -	Mountain, hill	Naulochos - -	Harbour
Brachos - - -	Cliff	Naus - - -	Ship
Broma - - -	Food	Neos, -a, -on	New
Chersonesus -	Peninsula	Nesos, Nisi, Nisla	Islet, island, islands
Chloros, -a, -on	Green	Notos - - -	South
Chorion - - -	Village	Oikos - - -	House
Chronos - - -	Time	Ormos - - -	Anchorage, bay, port
Croma - - -	Colour	Oros - - -	Mountain, hill
Dendron - - -	Tree	Palaaios, -a, -on	Old
Diorus - - -	Canal	Petra - - -	Rock
Drumos - - -	Wood	Petros - - -	Stone, rock
Ekklesia - - -	Church	Pharos - - -	Lighthouse
Eruthros, -a, -on	Red	Philos - - -	Friend
Euros - - -	South-east	Phos, Photos	Light
Glotta, Glossa	Tongue	Pneuma - - -	Wind
Gonia - - -	Angle	Polis - - -	City, town
Grapho - - -	I write	Potamos - - -	River
Helios - - -	Sun	Prasinos, -e, -on	Green
Hudor - - -	Water	Prioreus, Pilotes	Pilot
Isthmos - - -	Isthmus	Purgos, Pyrgos	Tower
Kastelli, Kastro, Kastron	Castle, fortress	Semanterion - -	Buoy, mark
Kato - - -	Lower	Skiron - - -	North-west
Khora - - -	Small town	Skopelos - - -	Rock
Kolpos - - -	Gulf	Skopes - - -	I see
Kome - - -	Village	Taphos - - -	Tomb
Kuklos - - -	Circle	Zephuros, Zephyros	West
Limen - - -	Harbour, port		
Limne - - -	Lake		
Lips - - -	South-west		

GLOSSARIES OF WORDS OCCURRING IN THE CHARTS AND
SAILING DIRECTIONS—*continued*

TURKISH.

Turkish.		English.	Turkish.		English.
Agatsh,	Aghach,	Tree	Khan	- - -	Inn, hotel
Aghaj			Kibla	- - -	South
Agha	- - -	Eunuch, master, officer	Kilaguz	- - -	Pilot
Aghz	- - -	Entrance	Kilisa	- - -	Church
Ak	- - -	White	Kioi	- - -	Village
Ada, Adasi, Ata	- - -	Island, islet, islands	Kiruzi, Kizil	- - -	Red
Bakshish	- - -	Gratuity	Konsolos	- - -	Consul
Balchik	- - -	Clay	Koyun	- - -	Bight, cove
Bash	- - -	Chief, head	Kuchuk	- - -	Small
Batagin	- - -	Marsh	Kulleh	- - -	Tower
Bazar	- - -	Market	Kum	- - -	Sand
Beyaz	- - -	White	Kuyu	- - -	Well
Boghaz	- - -	Channel, strait, estuary	Kyupru	- - -	Bridge
Burnu, Burun	- - -	Cape, point, promontory, head-land	Liman	- - -	Bay, harbour
Buyuk	- - -	Great	Liman-reissi	- - -	Harbour master
Capitan, Captan	- - -	Commander of a vessel	Liva	- - -	Country, flag
Chai	- - -	River	Lodos	- - -	South or South-west wind
Chamur	- - -	Mud	Maden	- - -	Mine
Chiflik	- - -	Farm	Maghreb	- - -	West
Dahg, Tagh	- - -	Mountain	Merdshan	- - -	Coral
Demi yeri	- - -	Anchorage	Mesjid	- - -	Mosque
Deniz	- - -	Sea	Minare	- - -	Minaret
Deniz teli	- - -	Telegraph cable	Mudir	- - -	Governor of a city
Dere	- - -	Valley	Nahr, Nehir	- - -	River, stream
Derin	- - -	Deep	Nishan	- - -	Beacon
Devirmeni	- - -	Mill	Orman	- - -	Forest, wood
Dil	- - -	Isthmus, point, sandspit	Palanka	- - -	Fort, fortress
Dragoman	- - -	Interpreter	Poiras	- - -	North-east
Duwar	- - -	Mole	Posta	- - -	Post
Eski	- - -	Ancient, old	Püssula	- - -	Compass
Fanar, Fener	- - -	Lighthouse, beacon	Reis	- - -	Captain of a vessel
Guel, Gol, Ghol	- - -	Lake	Rusghar	- - -	Wind
Gharb, Gharbi	- - -	West	Sanjak	- - -	Flag, district
Gyumruk	- - -	Custom house	Sarai	- - -	Palace, house
Ich, Ichereh	- - -	Interior	Sedd	- - -	Mole
Irmak	- - -	River	Selam	- - -	Salutation
Isharet	- - -	Signal	Shahbenderi	- - -	Buoy
Iskele, Iskelesi	- - -	Landing place	Shark	- - -	East
Jami	- - -	Mosque	Shehr, Sheher	- - -	Town, city
Jel	- - -	Wind	Shimal	- - -	North
Jenub, Jenubi	- - -	South	Sighi	- - -	Bank, shoal
Kaba-kum	- - -	Gravel	Su, Suyu	- - -	Water, river
Kale, Kaleh, Kalesi	- - -	Castle	Tabia, Tabiet	- - -	Battery
Kapu	- - -	Gate, pass	Tash	- - -	Exterior
Kara	- - -	Black	Tashlik	- - -	Stony
Karantina	- - -	Quarantine	Tepe	- - -	Hill, tumulus
Kaya	- - -	Cliff, hill, rocky	Tersaneh	- - -	Turkish Admiralty
Kayalik	- - -	Rocky	Tus	- - -	Salt
Keurfaz	- - -	Gulf	Tutak	- - -	Bar of a river
			Ufuk	- - -	Horizon
			Vilayet	- - -	Province, district
			Yar	- - -	Hill, cliff
			Yeni	- - -	New
			Yer	- - -	Land, country

SYSTEM OF ORTHOGRAPHY.

Adopted by the Admiralty for Sailing Directions and Charts.

As it is highly desirable that all officers of His Majesty's Navy and others should be able, on consulting the Admiralty Charts, to at any rate approximate to the correct pronunciation of words that they find therein written, it is necessary, in consequence of the multiplicity of sounds attached to nearly every combination of letters in the English language, to adopt an arbitrary system of orthography for the spelling of all geographical names in languages which are not habitually written in the Roman character.

The system adopted and described herein, originally introduced by Admiral Washington, has been accepted by the Royal Geographical Society, and all public departments in Great Britain, as well as by the United States.

As far as has been found possible with existing knowledge, native names are spelt in accordance with this system, which has been for some years in process of gradual introduction into all Admiralty Sailing Directions and Charts.

No change is made in the orthography of foreign names in countries which use Roman letters; thus French, Spanish, Portuguese, Dutch, &c., names will be spelt as by the respective nations.

1. Where native names have been so long written in a form which, though not in accordance with this system, has become familiar to English eyes from being so spelt in all charts and maps, they are retained.

2. The true sound of the word, as locally pronounced, is taken as the basis of the spelling.

3. An approximation of the sound is alone aimed at. A system, which would attempt to represent the more delicate inflections of sound and accent, would be so complicated as only to defeat itself.

4. The broad features of the system adopted are that vowels are pronounced as in Italian and consonants as in English; *every letter being pronounced*. Two accents only are used:—

- (1.) The acute, to denote the syllable on which stress is laid. The use of this is very important, as the sounds of many names are entirely altered by the misplacement of this "stress."
- (2.) The sign \sim over the letter *u* to denote the short sound of that vowel under certain circumstances. (See table.)

5. When two vowels come together, each one is sounded, though the result, when spoken quickly, is sometimes scarcely to be distinguished from a single sound, as in *ai*, *au*, *ei*.

The amplification of the rules is given on the following pages.

Information is invited as to the proper spelling of native names, so as to produce the nearest approximation to the true sound, by this system.

Letters.	Pronunciation and Remarks.	Examples.
a	<i>ah</i> , <i>a</i> as in <i>father</i> - - - - -	Java, Banána, Somáli, Bari.
e	<i>eh</i> , <i>e</i> as in <i>bet</i> ; <i>a</i> as in <i>fate</i> - - - - -	Tel-el-Kebír, Oléleh, Yezo, Levúka, Peru.
i	English <i>e</i> ; <i>i</i> as in <i>ravine</i> ; the sound of <i>ee</i> in <i>beet</i> . Thus, not <i>Feejee</i> , but	Fiji, Hindi.
o	<i>o</i> as in <i>mote</i> - - - - -	Tokyo.
u	long <i>u</i> as in <i>flute</i> ; the sound of <i>oo</i> in <i>boot</i> . <i>oo</i> or <i>ou</i> should never be employed for this sound. Thus, not <i>Zooloo</i> or <i>Zoulou</i> , but	Zulu, Sumatra.
	The shorter sound of the different vowels, when necessary to be indicated, can be expressed by doubling the consonant that follows. The sounds referred to are as follows :— The short <i>a</i> as in <i>fatter</i> , as compared with the long <i>a</i> as in <i>father</i> . The short <i>e</i> as in <i>better</i> , as compared with the long <i>e</i> as in <i>fate</i> . The short <i>i</i> as in <i>sinner</i> , as compared with the long <i>i</i> as in <i>ravine</i> . The short <i>o</i> as in <i>sobbing</i> , as compared with the long <i>o</i> as in <i>sober</i> . The short <i>u</i> as in <i>rubber</i> , as compared with the long <i>u</i> as in <i>rubric</i> .	Yarra, Tanna, Mecca, Jidda, Bonny.*
ü	is the same short sound of <i>u</i> as is denoted by doubling the consonant following, but is used, and only used, where such doubling is impossible, as in the case of words where <i>u</i> is followed by two different consonants, as in <i>Tüng</i> , pronounced as the English <i>tongue</i> . Doubling of a vowel is only necessary where there is a distinct repetition of the single sound.	Nuulúa, Oosima.
ai	English <i>i</i> as in <i>ice</i> - - - - -	Shanghai.

* The *y* is retained as a terminal in this word under Rule 1. The word is given as a familiar example of the alteration in sound caused by the second consonant.

Letters.	Pronunciation and Remarks.	Examples.
au	<i>ow</i> as in <i>how</i> . Thus, not <i>Foochow</i> , but	Fuchau.
ao	is slightly different from <i>au</i> - - -	Macao.
aw	when followed by a consonant or at the end	
	of a word, as in <i>law</i> - - - thus	Cawnpore.
ei	is the sound of the two Italian vowels, but	Beirút, Beilul.
	is frequently slurred over, when it is	
	scarcely to be distinguished from <i>ey</i> in	
	the English <i>they</i> , or <i>ei</i> in <i>eight</i> .	
b	English <i>b</i> .	
c	is always soft, but is so nearly the sound of	Celébes.
	<i>s</i> that it should be seldom used.	
	If <i>Celébes</i> were not already recognised it	
	would be written <i>Selébes</i> .	
ch	is always soft, as in <i>church</i> - - -	Chingchin.
d	English <i>d</i> .	
f	English <i>f</i> . <i>Ph</i> should not be used for the	
	sound of <i>f</i> . Thus, not <i>Haiphong</i> , but	Haifong, Nafa..
g	is always hard. (Soft <i>g</i> is given by <i>j</i>) -	Galápagos.
h	is always pronounced when used.	
hw	as in <i>what</i> ; better rendered by <i>hw</i> than <i>wh</i> ,	Hwang ho,
	or <i>h</i> followed by a vowel. Thus, <i>Hwang</i>	Ngan hwei.
	<i>ho</i> , not <i>Whang ho</i> or <i>Hoang ho</i> .	
j	English <i>j</i> . <i>Dj</i> should never be put for this	Japan, Jinchuen.
	sound.	
k	English <i>k</i> . It should always be put for the	
	hard <i>c</i> . Thus, not <i>Corea</i> , but	Korea.
kh	The Oriental guttural - - -	Khan.
gh	is another guttural, as in the Turkish -	Dagh, Ghazi.
l	} As in English.	
m		
n		
ng	has two separate sounds, the one hard as in	
	the English word <i>finger</i> , the other as in	
	<i>singer</i> . As these two sounds are rarely	
	employed in the same locality, no attempt	
	is made to distinguish between them.	
p	As in English.	
ph	As in <i>loophole</i> - - - - -	Mokpho,
		Chemulpho.
th	stands both for its sound in <i>thing</i> , and as	
	in <i>this</i> . The former is most common -	Bethlehem.
q	should never be employed; the sound of <i>qu</i>	Kwangtung.
	in <i>quiver</i> is given as <i>kw</i> . When <i>qu</i> has	
	the sound of <i>k</i> , as in <i>quoit</i> , it should be	
	given by <i>k</i> .	
r	As in English.	
s	As in <i>sin</i> .	
sh	} As in English.	
t		
v		
w		
x		Sawákin.

Letters.	Pronunciation and Remarks.	Examples.
y	is always a consonant, as in <i>yard</i> , and therefore should never be used as a terminal, <i>i</i> or <i>e</i> being substituted. Thus, not <i>Mikindány</i> or <i>Wady</i> , but not <i>Kwaly</i> , but	Kikūyu. Mikindáni, Wadi. Kwale.
z	English z - - - - -	Zulu.
zh	French <i>j</i> , or as <i>s</i> in <i>treasure</i> - - - Accents should not generally be used, but where there is a very decided emphatic syllable or stress which affects the sound of the word, it should be marked by an <i>acute</i> accent.	Muzhdaha. Tongatábu, Galápagos, Paláwan, Saráwak.

In the case of native names in countries under the dominion of other European powers, in whose maps, charts, &c., the spelling is given according to the system adopted by that power, such orthography is, as a rule, disregarded, and the names are spelt according to the British system. Thus the island east of Java in possession of the Dutch is spelt Madoera by them, but on Admiralty charts Madura. A town in Java appears on Dutch charts as Tjilatjap; in the British, Chilachap.

When a foreign language is written in a vocabulary of fixed sounds, so as to permit of transliteration into the British system, a table of equivalents for each letter is drawn up, and names of places can be transliterated without regard to pronunciation.

It is rare, however, that any language is absolutely without variation in the sound of any letters or combination of letters. This system therefore requires care. The rules for such transliterations so far adopted by the Admiralty are here given.

To reduce Greek names to the orthographic form, required by the foregoing system, would require so many changes that it has been decided to defer the revision of Admiralty publications until the system has been more generally introduced and used.

The Greek names are therefore left for the present in their old shape, but these give in most cases a very erroneous idea of the sound of the names, as pronounced by Greeks, and in many cases the present spelling gives a clue to the pronunciation by aid of the table of equivalents.

Thus Εὐβοία now spelt Eubœa is pronounced Evvia.
 „ Χαλκίς „ Chalcis „ Khalkis.
 „ Κεφαλληνία „ Cephallonia „ Kefallinia.

Whenever C appears in a Greek name as at present written it may be taken for granted it has the sound of K.

Greek Letters	Roman Equivalents by System	Greek Letters	Roman Equivalents by System
Α α	a	Ρ ρ	r
Β β	v	Σ σ ς	s
Γ γ	g	Τ τ	t
Δ δ	d	Υ υ	i
Ε ε	e	Φ φ	ph
Ζ ζ	z	Χ χ	kh
Η η	i	Ψ ψ	ps
Θ θ	th	Ω ω	o
Ι ι	i	ΑΙ αι	ei
Κ κ	k	ΕΙ ει	i
Λ λ	l	ΟΙ οι	i
Μ μ	m	ΟΥ ου	u
Ν ν	n	ΥΙ υι	i
Ξ ξ	x	ΑΥ αυ	aph, av
Ο ο	o	ΕΥ ευ	eph, ev
Π π	p	ΗΥ ηυ	iph, iv

In the transliteration of names in India and the Persian Gulf, the rules adopted by the Indian Government have been adopted, excepting that where the letter Q not followed by "u" is used in that system, the letter K is substituted.

In the transliteration of Malay or other native names from Dutch charts where they are spelt according to Dutch orthography—

Dj has been rendered by J,
Tj „ „ „ Ch,
oe }
oo } „ „ „ U,
ou }
ee „ „ „ E.

J in the middle of a word if followed by oe has been rendered by Y though not always. Ij has been rendered by ai generally.

For Chinese names, the Wade system of spelling, as modified in Playfair's "Cities and Towns of China," is adopted as a basis, being transliterated into this system in the following manner—

For CH', K', T', TS', TZ', write CH, K, T, TS, and TZ.
,, Chieh write Chie.

For Ê, if pronounced short as in CHÊN, FÊN, &c., write Û, or U followed by a double consonant.

For J write ZH.
,, KUA write KWA.
,, K'UA write KWA.
,, KUEI write KWEL.

For Ê terminal, as in CHÊ, LÊ, &c.,
write AW.

For Eh write E.

„ ÊI write EI.

„ ÊRH write URR.

„ HUA write HWA.

„ HUI write HWEI.

„ HUO write HWAU.

For K'UEI write KWEI.

„ KUO write KWAU.

„ O write AW.

„ OU write O.

„ P' write PH.

„ SSŨ write SE.

„ Ũ write U.

„ Ũ write E.

In this system the Manchurian dialect is adopted as the basis ; but with regard to names in the provinces of FU KIEN, KWANG TUNG and KWANGSI, the local pronunciation should be followed as a guide for the spelling. CHIH and SHIH, pronounced somewhat as the shi in shirt, have been retained, as the sounds are difficult to express according to the Royal Geographical Society's rules. Canton and Peiho are to be spelt in this, the customary way.

The following table gives the equivalents used by the Admiralty in the transliteration of Russian names :—

Printed Characters	Italic Characters	Equivalents in Adm. System	Remarks	Printed Characters	Italic Characters	Equivalents in Adm. System	Remarks
А а	<i>A a</i>	<i>a</i>		Т т	<i>T t</i>	<i>t</i>	
Б б	<i>B b</i>	<i>b</i>		У у	<i>Y y</i>	<i>u</i>	
В в	<i>B v</i>	<i>v</i>		Ф ф	<i>Φ φ</i>	<i>f</i>	
Г г	<i>Γ γ</i>	<i>g(h)</i>	<i>If g, always hard If h, as in English</i>	Х х	<i>X x</i>	<i>kh</i>	
Д д	<i>Δ δ</i>	<i>d</i>		Ц ц	<i>Ц ц</i>	<i>tz</i>	
Е е	<i>E e</i>	<i>e(ye)</i>	<i>e in bel (ye when initial)</i>	Ч ч	<i>Ч ч</i>	<i>ch</i>	
Ж ж	<i>Ж ж</i>	<i>z h</i>	<i>Sound of French j or z in azure.</i>	Ш ш	<i>Ш ш</i>	<i>sh</i>	
З з	<i>З з</i>	<i>z</i>		Щ щ	<i>Щ щ</i>	<i>shch</i>	<i>shch in Polish church</i>
И и	<i>I i</i>	<i>i</i>		Ъ ъ	<i>Ъ ъ</i>	<i>mute</i>	<i>Omit in transliteration</i>
І і	<i>I i</i>	<i>i</i>		Ы ы	<i>Ы ы</i>	<i>{yi}</i>	<i>in middle of a word at end . . .</i>
К к	<i>K k</i>	<i>k</i>		Ь ь	<i>Ь ь</i>	<i>mute</i>	<i>Omit in transliteration</i>
Л л	<i>L l</i>	<i>l</i>		Ѣ ѣ	<i>Ѣ ѣ</i>	<i>ye</i>	
М м	<i>M m</i>	<i>m</i>		Э э	<i>Э э</i>	<i>o</i>	<i>a in fate</i>
Н н	<i>H n</i>	<i>n</i>		Ю ю	<i>Ю ю</i>	<i>yu</i>	
О о	<i>O o</i>	<i>o</i>		Я я	<i>Я я</i>	<i>ya</i>	
П п	<i>P p</i>	<i>p</i>		Ѧ ѧ	<i>Ѧ ѧ</i>	<i>f</i>	
Р р	<i>P p</i>	<i>r</i>		Ѩ ѩ	<i>Ѩ ѩ</i>	<i>œ</i>	<i>Seldom used</i>
С с	<i>C c</i>	<i>s</i>		Ѫ ѫ	<i>Ѫ ѫ</i>	<i>i</i>	
				<i>Note. The combinations ЫИ and ИИ should be transliterated i.</i>			

INFORMATION RELATING TO CHARTS, SAILING DIRECTIONS, AND GENERAL NAVIGATION.

ON THE CORRECTION OF CHARTS, SAILING DIRECTIONS, AND LIGHT LISTS.

THE three descriptions of publications as guides to navigation, which are affected by the continual changes and alterations that take place, are the Charts, the Sailing Directions, and the Light Lists.

Of these the Charts should always be, so far as our knowledge permits, absolutely correct to date; the Sailing Directions, however, cannot, from their nature, be so corrected, and *in all cases where they differ from charts, the largest scale chart must be taken as the guide for navigation.*

The Light Lists are published annually.

1. Charts.—When issued to a ship on commissioning, the charts have received all necessary corrections to date. As sent from the Hydrographic Department they are correct to the date of issue as stamped on each folio. They then receive such corrections by hand in the dépôts as are required, and are so issued to the ships.

The charts in the folios should have the same number and title as shown against each in the Lists pasted on the outside of the folio. The Navigating Officer is to satisfy himself that they do so agree before signing the receipt for the charts, &c.

All small but important corrections affecting navigation that can be made by hand are notified by Notices to Mariners, and should at once be placed on the charts to which they refer, in accordance with the following uniform system:—

1. All corrections, additions to, erasures on Charts are to be neatly made in red (except as explained in paragraph 10 *d*). In every case the recognised Chart abbreviations are to be used. (*See Admiralty Chart X. 11.*)

2. The number and date of every Notice to Mariners, from which corrections, &c., as above, have been made, are to be entered in red at the lower left-hand corner of the Chart, in the following manner, viz.:—

(07) 123, 1145, 1503; (08) 232; (10) 1506, 1721; (11) 34, &c., and in no other place or form (except as explained in paragraph 10 *d*).

3. *General Remarks.*—The amount of information to be inserted on a Chart is to be in accordance with that already engraved on such Chart.

4. *The year date* is to be inserted against wrecks, reported shoals, channels dredged, depth of water on bars or in shifting channels, and irregularity of lights, but only on the largest scale chart affected.

5. *On the Coast Charts* full particulars of lights and fog signals are to be inserted where possible, omitting minor details of lights and fog signals of harbours.

6. *On Charts of smaller scale than Coast Charts* lights and fog signals of harbours are not to be inserted, and particulars of other

lights and fog signals are to be lessened as the scale of the Chart decreases, omitting details in the following order:—

For lights—(1) Height, (2) Period, (3) No. in Group, (4) Visibility, thus:—

Lt. Gp. Fl., (3) Red. ev. 20 sec. 150 ft., vis. 12 m.

(1) Lt. Gp. Fl., (3) Red. ev. 20 sec. vis. 12 m., (2) Lt. Gp. Fl., (3) Red. vis. 12 m.

(3) Lt. Gp. Fl. Red. vis. 12 m., (4) Lt. Gp. Fl. Red.

For fog signals, thus:—(1) Fog Siren, 2 ev. min., (2) Fog Siren, ev. min., (3) Fog Siren.

7. *On Ocean Charts* lights visible 15 miles or over are alone to be inserted, and then only their character and colour, *e.g.*, Lt. Alt., Lt. Gp. Fl., Lt. Occ., Lt. F.R.

8. *Light-buoys*.—No period is to be inserted against a light-buoy except in large scale plans; on ordinary scales only the character, *e.g.*, Lt. Occ., Lt. Fl.

9. *On Coast Charts* inner harbour buoys and beacons are not to be inserted, and on small scale coast charts only the outer buoys.

10. *Arrangement of Writing, &c.*—Writing is to be as much as possible clear of the water, unless the objects referred to are on the water:—

- (a) When inserting corrections, care must be taken not to obliterate any of the other information already on the chart.
- (b) When “Notes” are to be inserted (such as Cautionary, Tidal, &c.), they should be written in a convenient but conspicuous place, where they will not interfere with any other details.
- (c) *Erasures* are never to be made. Where necessary, the details to be corrected are to be crossed through in red ink.
- (d) *Temporary or intended changes* are to be inserted on the chart in pencil, with the number and year of the Notices to Mariners against them, thus:—N. to M. ⁴³₁₉₁₃ temp. (which is also to be repeated in pencil *below* the “small corrections” dates at the lower left-hand corner of the chart), and in the case of intended changes, the particulars finally inked in, in red, when further notice has been received that the changes have been made. In the case of temporary changes, the pencil notations are to be rubbed out when a further Notice has been received cancelling them.

Charts, when received from a Chart Dépôt or direct from the Hydrographic Department, will *not* have received the above-mentioned pencil corrections, but on first supply of a Chart Set, a copy of the latest Notice to Mariners, containing a List of all Notices to Mariners of a Temporary character and Preliminary Notices which are still in force *by which any Charts are temporarily affected*, will be specially handed to the Navigating Officer or attached to Chart Set, and the first duty of the Navigating Officer will be to make the necessary corrections in pencil to the charts affected.

11. One copy of all Notices to Mariners is to be pasted into the Sailing Directions, in its appropriate place, so that if fuller detail is required than what the scale of the chart permits to be given, it will be found on the proper page referring to the given locality or subject.

12. Unmounted Sets of Charts supplied for the personal use of the Admiral, Folio Atlases supplied for information of Officers and Junior Officers, and Charts for Ships' Company, are stamped, "Not to be used for Navigation," and need not, therefore, be kept corrected.

2. Sailing Directions are not corrected before issue, but on page iii. in the "Advertisement" to each volume will be found the number of the last Notice to Mariners used in its revision, the numbers of the subsequent Notices affecting it between going to press and issue to H.M. Ships are given in the Notice to Mariners announcing its publication.

Supplements and Revised Supplements referring to each volume are published from time to time. Supplements contain all the information received up to date since the publication of the volume to which they refer, and a Revised Supplement cancels the previous Supplements.

The existence of a Supplement is to be noted in the tabular form placed for the purpose inside the cover of each volume, and also on receipt of a further Revised Supplement after commission. Two copies are issued to each ship, one of which is to be retained intact, for reference, notations referring to it being made on the pages of the Sailing Directions affected; the other copy may be cut up, if considered desirable, the slips being pasted in the volume at the appropriate place.

In the advertisement to each Supplement will be found the number of the last Notice to Mariners used in its compilation.

In January of each year, a summary of the information affecting each volume of Sailing Directions, which has been published during the preceding year in Notices to Mariners, is issued in a separate publication. If a Supplement or Revised Supplement has been issued during the year, this summary will only include Notices to Mariners issued since the date of such Supplement; if one is in preparation at the end of the year, no summary will be issued.

Notices to Mariners prior to the date of issue of a Chart Set from a Chart Dépôt are supplied with the set, to complete the interval between the last published Supplement, Revised Supplement, or Summary of Notices to Mariners, and the issue of the Chart Set, and an early duty of the Navigating Officer after drawing a Chart Set is to correct the Sailing Directions from the Supplements or Revised Supplements, Annual Summaries of Notices to Mariners, and Notices to Mariners supplied with the Chart Set.

One copy of each Notice to Mariners should be pasted into the Sailing Directions in its appropriate place as soon as received.

It must, however, be thoroughly understood that Sailing Directions will never be correct in all minor details, except up to the date of the last Supplement or Revised Supplement, and that, as already stated, when differences exist, the chart, which should be corrected from the most recent information, should be taken as the guide; for which purpose, for ordinary navigation, they are sufficient.

3. The Light Lists, annually published at the beginning of each year, are not corrected in the dépôts before issue, but appendices are issued every week with the weekly copies of Notices to Mariners, giving the alterations that have taken place.

It is the duty of the Navigating Officer when he receives the Chart Set to make notations in the Light Lists from these appendices, and from Notices to Mariners of later date; and to keep them so corrected from time to time.

The Light Lists should always be consulted as to the details of a light, as the description in the Sailing Directions does not embrace the sectors, and the other information on the lights may be obsolete, in consequence of changes made since publication. A red label to this effect is inserted opposite page 1 of all Sailing Directions. The charts also may not be equally up-to-date in some details, for which no Notices to Mariners have been issued.

THE USE OF CHARTS AS NAVIGATIONAL AIDS AND GENERAL REMARKS RELATING TO PRACTICAL NAVIGATION.

1. *Reliance on a Chart.*—The value of a chart must manifestly depend upon the accuracy of the survey on which it is based, and this becomes more important the larger is the scale of the chart.

To estimate this, the date of the survey, which is always given in the title, is a good guide. Besides the changes that, in waters where sand or mud prevails, may have taken place since the date of the survey, the earlier surveys were mostly made under circumstances that precluded great accuracy of detail, and, until a plan founded on such a survey is tested, it should be regarded with caution. It may, indeed, be said that, except in well-frequented harbours and their approaches, no surveys yet made have been so minute in their examination of the bottom as to make it certain that all dangers have been found. The fullness or scantiness of the soundings is another method of estimating the completeness of a chart. When the soundings are sparse or unevenly distributed, it may be taken for granted that the survey was not in great detail.

It appears to be insufficiently realised that the degree of reliance which may reasonably be placed upon an Admiralty chart, even in surveys of modern date, is mainly dependent on the scale on which the survey was made. The scale for publication is now generally that of the original survey, except in the case of Coast sheets, which are sometimes reduced. It should not, therefore, be assumed that the original survey was made on a larger scale than that published.

It must be borne in mind that the only method of ascertaining the inequality of the bottom of the sea is by the laborious process of sounding, and that in sounding over any area, the boat or vessel obtaining the soundings is kept on given lines; that each time the lead descends it only ascertains the depth of water over an area equal to the diameter of the lead, that is about two inches, and that consequently each line of soundings, though miles in length, is only to be considered as representing a width of two inches.

Surveys are not made on uniform scales, but each survey is made on a scale commensurate with its apparent importance. For instance, a general survey of a coast which vessels only pass in proceeding from one place to another is not usually made on a scale larger than one inch to the nautical mile, while surveys of areas where vessels are likely to anchor, are made on a scale of three inches to the mile, and surveys of frequented ports, or harbours likely to be used by Fleets, on a scale of from six inches to ten inches to the nautical mile.

Close examination by sounding is the only method by which surveys on a large scale can be made, and in view of the vast mileage of surveys yet requiring completion in the interests of navigation, it would be a waste of time to undertake large scale Coast surveys.

The scale on which a survey is to be conducted having been settled, it is manifestly superfluous to obtain more lines of soundings than can be represented on the paper. 100 soundings, which is the maximum number that can be placed with clearness on every square inch of paper, means that on a scale of one inch to the mile each sounding on the chart occupies an area representing eight acres of actual ground, whilst on a scale of six inches to the mile each sounding represents an area of a little less than a quarter of an acre, *i.e.*, of 100 feet square.

The following diagram represents as many soundings as can be placed legibly on a square inch of paper:—

16	15	13	13	14	12	11	10	9
14	15	14	14	13	13	12	11	9
15	15	14	17	16	14	13	10	9
16	16	17	16	16	12	11	8½	9
16	17	15	12	9	7½	7½	7½	9
19	16	12	9	5½	4½	5½	6½	8½
22	19	16	10	5½	5½	6½	7½	8½
20	16	12	7½	5½	6½	6½	7½	8½
18	15	11	9	7½	7	7½	8½	11
20	17	14	11	12	10	9	10	11

Little assistance in detecting excrescences on the bottom is afforded by the eye, when sounding in a boat, even in clear weather, on account of the observer being within five feet of the surface; none in turbid seas. If, therefore, there is no inequality in the soundings to cause suspicion, a shoal patch between two lines may occasionally escape detection.

Lines of soundings plotted as close as may be practicable on a scale of 6 inches to the mile would be 100 feet apart, and each line would be only 2 inches in actual width.

Thus, in a chart on a scale of one inch to the mile, an inequality of some acres in extent rising close to the surface, if it happened to be situated between two lines, might escape the lead; whilst in a chart on a scale of 6 inches, inequalities as large as battle-ships, if lying parallel to, and between the lines of soundings, might exist without detection if they rose abruptly from an otherwise even bottom.

General Coast charts should not, therefore, be looked upon as infallible, and a rocky shore should on no account be approached within the contour line of 10 fathoms, without taking every precaution to avoid a possible danger; and even with surveys of harbours on a scale of 6 inches to the mile, vessels should avoid, if possible, passing over charted inequalities in the ground, as some isolated rocks are so sharp that the lead will not rest on them.

Blank spaces among soundings mean that no soundings have been obtained in these spots. When the surrounding soundings are deep it may with fairness be assumed that in the blanks the water is also deep; but when they are shallow, or it can be seen from the rest of the chart that reefs or banks are present, such blanks should be regarded with suspicion. This is especially the case in coral regions and off rocky coasts, and it should be remembered that in waters where rocks abound it is always possible that a survey, however complete and detailed, may have failed to find every small patch.

A wide berth should therefore be given to every rocky shore or patch, **and this rule should be invariably followed, viz., that instead of considering a coast to be clear, unless it is shown to be foul, the contrary should be assumed.**

2. *Fathom Lines a Caution.*—Except in plans of harbours that have been surveyed in detail, the five-fathom line on most Admiralty charts is to be considered as a caution or danger line against unnecessarily approaching the shore or bank within that line, on account of the possibility of the existence of undiscovered inequalities of the bottom, which nothing but an elaborate detailed survey could reveal. In general surveys of coasts or of little frequented anchorages, the necessities of navigation do not demand the great expenditure of time required for such a detailed survey. It is not contemplated that ships will approach the shores in such localities without taking special precautions.

The ten-fathom line is, on rocky shores, as before mentioned, another warning, especially for ships of heavy draught.

Charts where no fathom lines are marked must be especially regarded with caution, as it generally means that soundings were too scanty and the bottom too uneven to enable them to be drawn with accuracy.

Isolated soundings, shoaler than surrounding depths, should always be avoided, especially if ringed round, as there is no knowing how closely the spot may have been examined.

3. *Chart on largest scale always to be used.*—It sometimes happens that, from press of work, only the copper plate of the larger scale chart of a particular locality can at once receive any extensive re-arrangement of coastline or soundings. This is an additional reason, besides the obvious one of the greater detail shown, why this largest scale chart should always be used for navigating.

4. *Caution in using Small Scale Charts.*—In approaching the land or dangerous banks, regard must always be had to the scale of the chart used. A small error in laying down a position means only yards on a large scale chart, whereas on a small scale the same amount of displacement means large fractions of a mile. This is particularly to be observed when coming to an anchor on a narrow ledge of convenient depth at some distance from the shore.

For the same reason bearings to objects near should be used in preference to objects farther off, although the latter may be more prominent, as a small error in bearing or in laying it down on the chart has a greater effect in misplacing the position the longer the line to be drawn.

5. *Graduation.*—All Plans are now being graduated in skeleton style before publication in order to facilitate easy reference to Astronomical positions; previously published plans are also graduated as opportunity offers. The graduation is, however, of necessity, often based upon imperfect information of a conflicting nature; for this reason, whenever an Astronomical position is quoted other than approximate (*i.e.*, when seconds are given), it is necessary to quote also the number of the particular chart from which the position has been derived.

6. *Distortion of Printed Charts.*—The paper on which charts are printed has to be damped. On drying, distortion takes place from the inequalities in the paper, which greatly varies with different paper and the amount of the original damping; but it does not affect

navigation. It must not, however, be expected that accurate series of angles taken to different points will always exactly agree, when carefully plotted upon the chart, especially if the lines are to objects at some distance. The larger the chart the greater the amount of this distortion.

7. Buoys.—It is manifestly impossible that any reliance can be placed on buoys always maintaining their exact position. Buoys should therefore be regarded as warnings and not as infallible navigating marks, especially when in exposed positions; and a ship should always, when possible, be navigated by bearings or angles of fixed objects on shore and not by buoys.

Gas Buoys.—The lights shown by gas buoys cannot be implicitly relied on, as, if occulting or flashing, the apparatus may get out of order, or the light may be altogether extinguished. These lights in the British islands are from 5 to 217 candle power.

8. Lights.—Circles drawn on charts round a light are not intended to give information as to the distance at which it can be seen, but solely indicate, in the case of lights which do not show the same characteristics or colours in all directions, the bearings between which the differences occur.

All the distances given in the Light Lists and on the charts for the visibility of lights are calculated for a height of an observer's eye of 15 feet. The table of distances visible due to height, at the end of each Light List, affords a means of ascertaining how much more or less the light is visible should the height of the bridge be more or less. The glare of a powerful light is often seen far beyond the limit of visibility of the actual rays of the light, but this must not be confounded with the true range. Again, refraction may often cause a light to be seen farther than under ordinary circumstances.

When looking out for a light at night, the fact is often forgotten that from aloft the range of vision is much increased. By noting a star immediately over the light a very correct bearing may be afterwards obtained from the standard compass.

The intrinsic power of a light should always be considered when expecting to make it in thick weather. A weak light is easily obscured by haze, and no dependence can be placed on its being seen.

The power of a light can be estimated by remarking its order, or candle power, as given in the Light Lists, and in some cases by noting how much its visibility in clear weather falls short of the range due to the height at which it is placed. Thus, a light standing 200 feet above the sea, and only recorded as visible at 10 miles in clear weather, is manifestly of little brilliancy, as its height would permit it to be seen over 20 miles, if of any power. (See table in Light List before mentioned.)

The distance from a light cannot be estimated either by its brilliancy or its dimness.

On first making a light from the bridge, by at once lowering the eye several feet and noting whether the light is made to dip, it may be determined whether the vessel is in the circle of visibility corresponding with the usual height of the eye or unexpectedly nearer the light.

9. Fog Signals.—Sound is conveyed in a very capricious way through the atmosphere. Apart from wind, large areas of silence have been found in different directions and at different distances from the fog signal station, in some instances even when in close proximity to it. The apparatus, moreover, for sounding the signal often requires some time before it is in readiness to act. A fog often creeps imperceptibly towards the land, and is not observed by the people at a station until it is upon them; whereas a ship may have been for many hours in it, and approaching the land. In such a case no signal may be made. When sound has to travel against the wind, it may be thrown upwards; in such a case, a man aloft might hear it when it is inaudible on deck. Under certain conditions of the atmosphere, when a fog signal is a combination of high and low notes, one of the notes may be inaudible.

The mariner should not assume—

- a. That because he fails to hear the sound, he is out of hearing distance.
- b. That, because he hears a fog signal faintly, he is at a great distance from it.
- c. That, because he hears the sound plainly, he is near it.
- d. That, because he does not hear it, even when in close proximity, the fog signal has ceased sounding.
- e. That the distance from and the intensity of the sound on any one occasion, are a guide to him for any future occasion.

Taken together, these facts should induce the utmost caution in closing the land in fogs. The lead is generally the only safe guide.

10. Tides and Tidal Streams.—In navigating coasts where the tidal range is considerable, caution is always necessary. It should be remembered that there are indraughts to all bays and bights, although the general run of the stream may be parallel to the shore.

The turn of the tidal stream off-shore is seldom coincident with the time of high and low water on the shore. In open channels, the tidal stream ordinarily overruns the turn of the vertical movement of the tide by about three hours, forming what is usually known as tide and half-tide, the effect of which is that at high and low water by the shore the stream is running at its greatest velocity.

In crossing a bar or shallow flats, "Table B, for finding the height of tide at any intermediate hour between high and low water," and diagrams, given in the Tide Tables, will be found of great assistance in calculating how much the water has risen or fallen at any hour of the tide.

On coasts where there is much diurnal inequality in the tides, the amount of rise and fall can never be depended upon, and additional caution is necessary.

It should also be remembered that at times the tide falls below the level of low-water ordinary springs. This always occurs on the coasts of Europe at the equinoxes, but in other parts of the world, and especially in the tropics, such periodic low tides may coincide more frequently with the solstices. Wind or a high barometer may produce it at any time, and the amount varies with locality. When the moon's perigee coincides with the full or new moon the same effect is often produced.

11. Arrows on charts only show the most usual or the mean direction of a tidal stream or current. It must never be assumed that the

direction of a stream will not vary from that indicated by the arrow. In the same manner, the rate of a stream constantly varies with circumstances, and the rate given on the chart is merely the mean of those found during the survey, possibly from very few observations.

12. Fixing position.—The most accurate method of fixing a position relative to the shore is by angles between well-defined objects on the chart. All ships are supplied with a station-pointer, and this method should be used whenever possible.

Two things are, however, necessary to its successful employment: First, that the objects be well chosen; and, second, that the observer is skilful and rapid in his use of the sextant and station-pointer.

For the former, reference can be made to the pamphlet on the use of the station-pointer, which is in every chart box; the latter is only to be obtained by practice.

It will readily be seen that in war time, when the compass may be knocked away, or gun-fire may make it undesirable to expose the person more than necessary, a sextant offers great advantages, as angles can be obtained from any position whence the objects are visible. It is this contingency that makes it especially desirable that all navigating officers should become expert in this method of fixing a ship's position.

In many narrow waters also, where the objects may yet be at some distance, as in coral harbours or narrow passages among mud banks, navigation by sextant and station-pointer is invaluable, as a true position can only be obtained by its means. A small error in either taking or plotting a bearing under such circumstances may put the ship ashore.

It is not intended that the use of the compass to fix the ship should be given up; there are many circumstances in which it may be usefully employed, but errors more readily creep into a position so fixed. In all cases where great accuracy of position is desired, angles should invariably be used, such as the fixing of a rock or shoal, or of additions to a chart of fresh soundings or new buildings. In all such cases angles should be taken to several objects, the more the better; but five objects is a good number, as the four angles thus obtained not only prevent any errors, but they at once furnish a means of checking the accuracy of the chart itself. In the case of ordinary soundings, it is only necessary to take a third angle now and then; firstly, to check the general accuracy of the chart, as above stated; secondly, to make certain that the more important soundings, as at the end of a line, are correctly placed.

Sometimes, when only two objects are visible, a compass bearing and sextant angle may be used with advantage.

In passing near a point of land, or an island, the method of fixing by doubling the angle on the bow is invaluable. The ordinary form of it, the so-called "four-point bearing," when the bearing is taken four points on the bow and on the beam, the distance from the object at the latter position being the distance run between the times of taking the two bearings, allowing for current, gives an excellent fix for a departure but does not ensure safety, as the point and probably the rocks off it are abeam before the position is obtained.

By taking the bearings of two points and four points on the bow, a very good position is obtained before the object is passed; the distance of the latter at the second position being, as before, equal to the distance run in the interval, allowing for current.

This is, however, only strictly true if the current is directly with or against the course of the ship. If a cross current has to be allowed for, the results by this method may be altogether erroneous and misleading. The following example shows in a tabular form the errors that might be produced by accepting the distance run in the interval, allowing for current, as the distance of the object at time of second bearing.

Example: A vessel steering East sights a light bearing E.N.E., or two points on the bow; one hour after, having run in the interval 10 miles by log, the light bears N.E., *i.e.*, she has doubled the angle on the bow. Current, in all cases, at the rate of 2 miles an hour.

Direction of Current	Distance run between 1st & 2nd Bearings		Distance of Light at 2nd Bearing	Direction of Current	Distance run between 1st & 2nd Bearings		Distance of Light at 2nd Bearing
	By Log	Allowing for Current			By Log	Allowing for Current	
	Miles	Miles	Miles		Miles	Miles	Miles
East -	10	12	12	West -	10	8	8
E.N.E. -	10	11.8	10	W.S.W. -	10	8.2	10.2
N.E. -	10	11.4	8	S.W. -	10	8.7	11.9
N.N.E. -	10	11	6.2	S.S.W. -	10	9.4	13.6
North -	10	10.2	5.3	South -	10	10.2	14.7
N.N.W. -	10	9.4	4.9	S.S.E. -	10	11	15
N.W. -	10	8.7	5.3	S.E. -	10	11.4	14.7
W.N.W. -	10	8.2	6.1	E.S.E. -	10	11.8	13.8

The following rule should be observed in all cases of a cross current, viz.:—

When the angle between the second bearing and the course made good (over the ground) is double the angle between the first bearing and the course made good (over the ground) the distance from the object is equal to the distance made good (over the ground) between the times of the first and second bearings.

To get a reliable result the difference between the first bearing and the course made good (over the ground) should never be less than 20°. It follows, therefore, that it is necessary, before observing the first bearing, to decide upon the course being made good (over the ground). This may be done as follows, viz.:—

From any point, A, on the chart draw a line A B, representing by its direction the course steered and by its length the speed through the water. From the point B, draw another line, B C, representing in a similar manner the estimated direction and rate of the current, &c., to be allowed for. Then a line joining the points A and C will represent in the same manner the course and speed which are being made good (over the ground).

A table of factors, by which to multiply the distance run, to obtain the distance of the object when any number of degrees between the two bearings has been observed, is supplied with all chart sets.

The use of a danger angle in passing outlying rocks with land behind should also not be forgotten. In employing this method, however, caution is necessary, as should the chart be not accurate, *i.e.*, should the objects selected be not quite correctly placed, the angle taken off from it may not serve the purpose. It should not, therefore, be employed when the survey is old or manifestly imperfect.

In fixing by the compass, it must always be remembered that two bearings only are liable to error. An absolute error may be made in either bearing observed; errors may be made in applying the deviation; or errors may creep in in laying them on to the chart. For these reasons, a third or check bearing of some other object should be taken, especially when near the shore or dangers. The coincidence of these three lines will prevent any mistakes.

Amongst astronomical methods of fixing a ship's position, attention is drawn to the great utility of Sumner's method. A Sumner line, that is, a line drawn through the position (obtained by an assumed latitude or longitude) at right angles to the bearing of the sun, as obtained from the azimuth tables, gives at times invaluable information, as the ship must be somewhere on that line, provided the chronometer is correct. A deep cast of the lead at the same time may often serve to give an approximate position on the line. An early and very accurate position can also be obtained by Sumner's method, by getting a Sumner line by a bright star at daylight when the horizon is well visible, and another Sumner line by the sun when a few degrees above the horizon, or, better still, by observing two or more stars at twilight. The Sumner lines thus obtained will, if the bearing of sun and star differ three points or more, give an excellent result.

13. Change of Variation of the Compass.—The gradual change in the variation must not be forgotten in laying down positions by bearing on charts. The magnetic compasses placed on the charts for the purpose of facilitating plotting become in time slightly in error, and in some cases, such as with small scales, or when the lines are long the displacement of position from neglect of this change may be of importance. The compasses are re-engraved when the error amounts to a quarter of a point, but the chart plates cannot be corrected more frequently from the impossibility of making alterations often on one spot in a copper plate.

The geographical change in the variation is in some parts of the world sufficiently rapid to need consideration. For instance, in approaching Halifax from Newfoundland the variation changes 10° in less than 500 miles, and in the English Channel about 5° in 400 miles. The Variation Chart should be consulted on this head.

On certain general charts embracing large areas with considerable change of variation, true compasses are placed instead of magnetic compasses, the variation being shown by *isogonic lines* (curves of equal magnetic variation), in a similar manner to the Variation Chart. One or two *isogonic lines* are also sometimes placed on charts, in addition to the magnetic compasses, in order to indicate the general direction of these curves, and thus facilitate the determination of the variation to be employed in portions of the chart not in immediate proximity to any one of the engraved compasses.

14. Local Magnetic Disturbance of the Compass on board Ship.—The term "local magnetic disturbance" has reference only to the effects on the compass of magnetic masses external to the ship in which it is placed. Observation shows that such disturbance of the compass in a ship afloat is experienced only in a few places on the globe.

Magnetic laws do not permit of the supposition that it is the visible land which causes such disturbance, because the effect of a magnetic force diminishes in such rapid proportion as the distance from it increases that it would require a local centre of magnetic force

of an amount absolutely unknown to affect a compass half a mile distant.

Such deflections of the compass are due to magnetic minerals in the bed of the sea under the ship, and when the water is shallow, and the force strong, the compass may be temporarily deflected when passing over such a spot, but the area of disturbance will be small, unless there are many centres near together.

It is very desirable that whenever a ship passes over an area of local magnetic disturbance, the position should be fixed, and the facts reported as far as they can be ascertained.

15. Use of Oil for Modifying the Effect of Breaking Waves.—Many experiences of late years have shown that the utility of oil for this purpose is undoubted, and the application simple.

The following may serve for the guidance of seamen, whose attention is called to the fact that a very small quantity of oil, skilfully applied, may prevent much damage both to ships (especially the smaller classes) and to boats, by modifying the action of breaking seas.

The principal facts as to the use of oil are as follows:—

1. On free waves, *i.e.*, waves in deep water, the effect is greatest.
2. In a surf, or waves breaking on a bar, where a mass of liquid is in actual motion in shallow water, the effect of the oil is uncertain, as nothing can prevent the larger waves from breaking under such circumstances; but even here it is of some service.
3. The heaviest and thickest oils are most effectual. Refined kerosene is of little use; crude petroleum is serviceable when nothing else is obtainable; but all animal and vegetable oils, such as waste oil from the engines, have great effect.
4. A small quantity of oil suffices, if applied in such a manner as to spread to windward.
5. It is useful in a ship or boat, both when running, or lying to, or in wearing.
6. No experiences are related of its use when hoisting a boat up in a sea-way at sea, but it is highly probable that much time and injury to the boat would be saved by its application on such occasions.

At anchor, when the sea is sufficient to render it difficult to hoist up or in boats, oil bags from forward or from the swinging booms have been found to render the sea alongside comparatively smooth.

7. In cold water, the oil, being thickened by the lower temperature, and not being able to spread freely, will have its effect much reduced. This will vary with the description of oil used.

8. The best method of application in a ship at sea appears to be: hanging over the side, in such a manner as to be in the water, small canvas bags, capable of holding from one to two gallons of oil, such bags being pricked with a sail needle to facilitate leakage of the oil.

The position of these bags should vary with the circumstances. Running before the wind they should be hung on either bow—*e.g.*, from the cathead—and allowed to tow in the water.

With the wind on the quarter the effect seems to be less than in any other position, as the oil goes astern while the waves come up on the quarter.

Lying to, the weather bow and another position farther aft seem the best places from which to hang the bags, with a sufficient length of line to permit them to draw to windward, while the ship drifts.

9. Crossing a bar with a flood tide, oil poured overboard and allowed to float in ahead of the boat which would follow with a bag towing astern, would appear to be the best plan. As before remarked, under these circumstances the effect cannot be so much trusted.

On a bar with the ebb tide it would seem to be useless to try oil for the purpose of entering.

10. For boarding a wreck, it is recommended to pour oil overboard to windward of her before going alongside. The effect in this case must greatly depend upon the set of the current, and the circumstances of the depth of water.

11. For a boat riding in bad weather from a sea anchor, it is recommended to fasten the bag to an endless line rove through a block on the sea anchor, by which means the oil is diffused well ahead of the boat, and the bag can be readily hauled on board for refilling if necessary.

12. Towing a vessel in a heavy sea, oil is of the greatest service, and may prevent parting the hawser. Distribute from the towing vessel forward and on both sides; if used only aft the tow alone gets the benefit.

16. Concise Rules for Revolving Storms:—

1. Revolving storms are so named because the wind in these storms revolves round an area of low pressure situated in the centre. They have also local names, and are termed hurricanes in the West Indies and South Pacific Ocean; cyclones in the Indian Ocean, Bay of Bengal, and Arabian Sea; and typhoons in the China Sea.

2. In these storms the wind always revolves the same way in the same part of the world, that is, against the movement of the hands of a watch in the northern hemisphere, and with the hands of a watch in the southern hemisphere. The wind does not revolve in circles, but has a spiral movement, inwards, towards the centre.

3. Revolving storms have also, as a general rule, a progressive movement. Within the tropics they usually move from east to west at first, and then curve towards the pole of the hemisphere in which the storm is generated, and afterwards move from west to east.

4. The track which the centre of the storm takes is called the path of the storm, and the portion of the storm-field on the right of the path is known as the right-hand semicircle, and that on the left as the left-hand semicircle of the storm.

5. In the right-hand semicircle, if the observer be stationary, the wind will always shift to the right, and in the left-hand semicircle to the left. This law holds good in both hemispheres.

6. If a vessel be so situated in a storm that running before the wind the path of the advancing storm will be crossed, this is considered to be the dangerous semicircle. This will always be the right-hand semicircle in the northern hemisphere, and the left-hand in the southern.

7. These storms are most frequent in the northern hemisphere from July to November, and in the southern hemisphere from December to May. In the Bay of Bengal and Arabian Sea they, however, occur most frequently about the time of the change of the monsoon.

8. The area over which revolving storms have been known to extend varies in diameter from 20 miles to some hundreds of miles, and their rate of movement in the West Indies averages about 300 miles a day; in the China Sea, Bay of Bengal, and Arabian Sea about 200 miles a day; and in the Indian Ocean from 0 to 200 miles a day, the more stationary storms occurring at the beginning and end of the hurricane season.

9. The indications of the approach of a revolving storm are (1) an unsteady barometer, or even a cessation in the diurnal range, which is constant in settled weather; (2) a heavy swell not caused by the wind then blowing; (3) an ugly, threatening appearance of the sky.

10. In order to judge what is the best way to act if there is reason to believe a storm is approaching, the seaman requires to know (a) in which direction the centre of the storm is situated, (b) in which semicircle the ship is situated.

11. As these points cannot be determined if a vessel is moving with any speed through the water, the first proceeding should be to "stop" or "heave to," and, as it is always best to assume, at first, that the vessel may be in the dangerous semicircle, she should be hove to on the starboard tack in the northern hemisphere, and on the port tack in the southern.

12. If an observer faces the wind the centre of the storm will be from 12 to 8 points on his right hand in the northern hemisphere, and on his left hand in the southern hemisphere; 12 points when the storm begins; about 10 points when the barometer has fallen three-tenths of an inch, and about 8 points when it has fallen six-tenths of an inch or upwards.

13. If the wind shifts to the right the vessel is in the right-hand semicircle, if to the left in the left-hand semicircle, and, if the wind is steady in direction, but increasing in force, she is in the direct path of the storm.

14. If the seaman has reason to think that his vessel is in the direct path of the storm he should run with the wind on the starboard quarter in the northern, and on the port quarter in the southern, hemisphere until the barometer has ceased falling. If she is in the right-hand semicircle in the northern hemisphere she should remain hove to on the starboard tack, but if in the southern hemisphere run with the wind on the port quarter; if she is in the left-hand semicircle in the northern hemisphere she should run with the wind on the starboard quarter, but if in the southern hemisphere remain hove to on the port tack.

15. Should a vessel not have sufficient room to run when in the least dangerous semicircle, she should heave to on the port tack in the northern, and on the starboard tack in the southern, hemisphere.

16. If in a harbour or at anchor the seaman should be just as careful in watching the shifting of the wind and ascertaining the direction of the centre, as by so doing he will be able to tell on which side of the path of the storm he is situated, and be able to act according to circumstances.

17. Should the centre of a storm pass over a vessel, the wind, after blowing furiously in one direction, ceases for a time, and then blows with equal fury from the opposite direction. This makes a confused pyramidal sea, which is especially dangerous.

IN THIS WORK THE BEARINGS ARE ALL TRUE, IN DEGREES, FROM 0° (NORTH) TO 360°, MEASURED CLOCKWISE.

THE LATITUDES AND LONGITUDES GIVEN IN THE TEXT ARE APPROXIMATE.

THE VARIATION GIVEN IN THE SEVERAL PAGES IS FOR THE YEAR 1917.

THE DISTANCES ARE EXPRESSED IN NAUTICAL MILES OF 60 TO A DEGREE OF LATITUDE.

A CABLE'S LENGTH IS ASSUMED TO BE EQUAL TO THE TENTH PART OF A NAUTICAL MILE.

THE SOUNDINGS ARE REDUCED TO MEAN LEVEL OF LOW WATER SPRING TIDES, WHERE NOT OTHERWISE STATED.

HEIGHTS ON THE LAND ARE GIVEN ABOVE MEAN LEVEL OF HIGH WATER SPRING TIDES.

THE COLOURS OF FLAGS, BEACONS; &c., ARE SHOWN IN ACCORDANCE WITH THE FOLLOWING:—



Yellow.



Red.



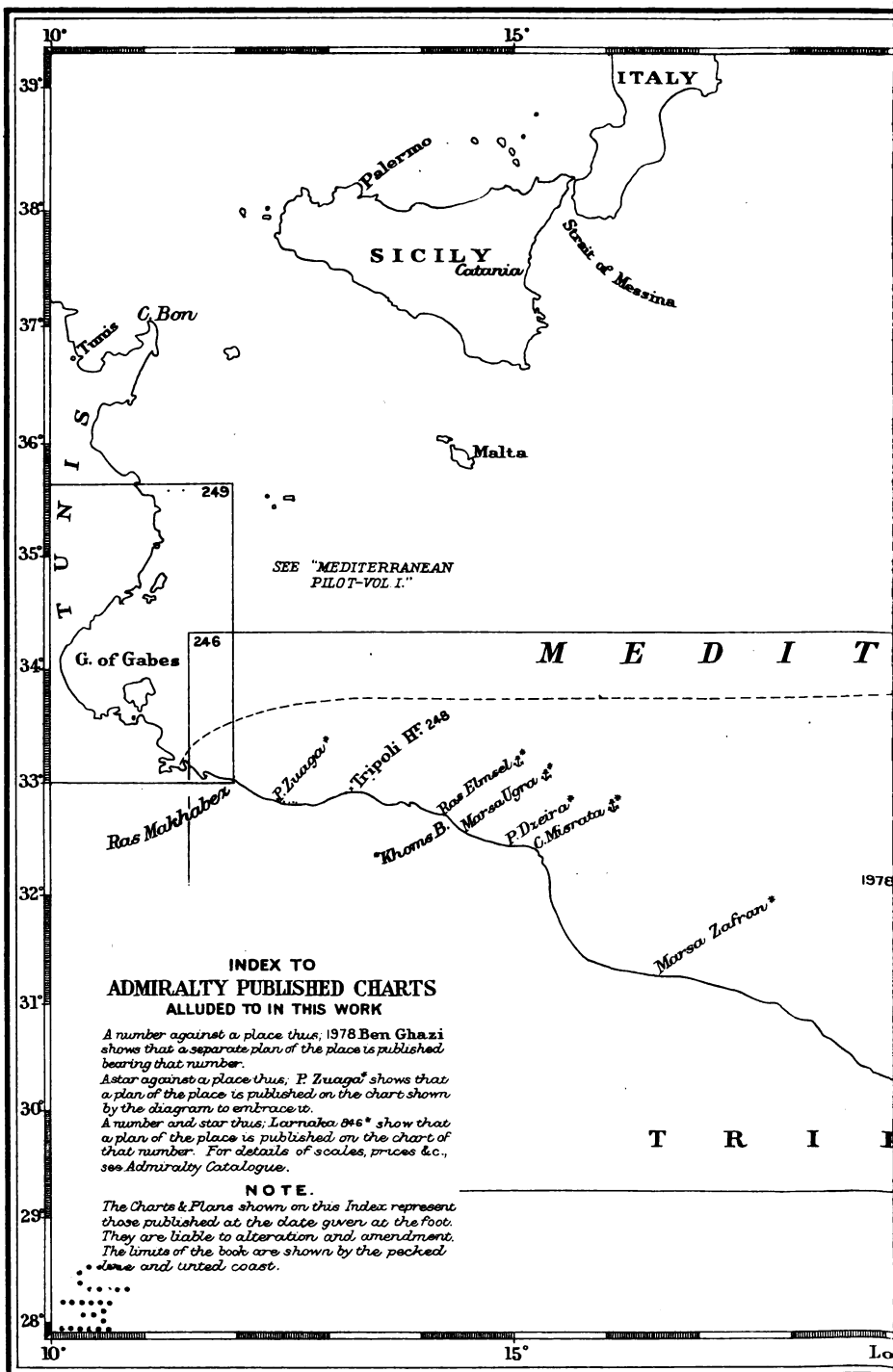
Blue.



Green.



Black.



THE MEDITERRANEAN PILOT, VOL. V.

CHAPTER I.

TRIPOLI.—EGYPT.—KARAMANIA.—CYPRUS.—SYRIA.—GENERAL

For details of the Lights and Fog Signals which are included in this work, seamen should consult the Admiralty List of Lights, Part V. This List is published early in every year, corrected to the preceding 31st December.

10862

well cultivated, the greatest part of the territory is barren desert, interspersed at wide intervals with some oases. The country is treeless, but there are some palm and olive groves near the coast and in a part of Derna; there are but few water courses. 15

The population, which is very mixed, according to a census taken in 1911, was 523,176 natives, including Libian Berbers, Moors, and a few Arabs; also some 5,000 or 6,000 Europeans, chiefly Maltese, and some 24,000 Jews. 20

Government.—Tripoli, formerly a vilayet of the Ottoman empire, was transferred to Italy by the Treaty of Ouchy (1912) and named Libia by the Italians. It is divided into Tripolitania (Tripoli) and Cyrenaica (Cirenaica) provinces, each having a Governor, residing, respectively, at Tripoli and Benghazi. 25

General chart 2158b.

Harbours.—Tripoli harbour affords shelter to vessels of 22 feet and less draught, and Marsa Tebruk to vessels of all sizes; there are no other places which afford shelter even to vessels of moderate draught.

- 5 **Products.**—The products are corn, fruit, silk, cotton, tobacco, madder, saffron, esparto grass, castor oil, senna, and dates. Cattle, ivory, wool, cereals, and other agricultural produce, when sufficient rain causes a good harvest, are exported, principally to Malta. The sponge fishery on the coast is in the hands of Europeans,
10 and is carried on, in summer only, by numerous small craft; the best sponges are found to the westward of the town of Tripoli.

EGYPT, the north-eastern part of Africa, comprises the oases of the Libian desert, the delta and valley of the Nile as far as the second cataract, and the peninsula of Sinai.

- 15 The coast is about 460 miles in length between Sollum, on the west, and El Arish on the east; it is moderately high for some 50 miles eastward of Sollum, and thence to El Arish it is generally low. The boundary between Egypt and Turkey is about 22 miles north-eastward of El Arish.

- 20 The cultivated portion of the country is confined to the part bordering the River Nile, which is annually inundated, or artificially irrigated.

The population, by the census of 1907, was 11,287,359, including 286,302 foreigners; Cairo, the capital, having 654,476 inhabitants.

- 25 **Government.**—Egypt is a British protectorate, and is under the rule of the Sultan. There is a British High Commissioner for Egypt.

- 30 **Harbours.**—Alexandria and Port Said are the only harbours available for large vessels. Marsa Matruh, about 105 miles eastward of Sollum, is small.

- Products.**—Egypt produces wheat, barley, maize, rice, beans, sugar and cotton. Clover, sugar cane, and onions are grown; there is also considerable live stock, including cattle, buffaloes, horses, and mules. Building stone, clays, gypsum, gold, lead, and zinc ores, natron, nitrate
35 of soda, petroleum, phosphate of lime, peridots, turquoise, and salt are produced, and alum, copper ores, emeralds, granite, iron ores, nickel, ochres, ornamental stones, and sulphur are known to exist.

- Trade.**—The chief imports are textiles, cereals, and vegetables, wood, coal, metals and metalwork, chemical products, medicines,
40 spirits, oils, and tobacco, and the exports are mainly cotton and cotton seed, cereals and vegetables, and cigarettes, ivory, and ostrich feathers.

The value of the imports in 1913 was £E27,865,195, and that of the exports £E31,662,065.

General chart 2606.

Currency.—The monetary unit of Egypt is the Egyptian pound (£E) of 100 piastres=£1. 0s. 6½d.; the piastre is divided into 10 milliemes. The Egyptian gold coins are practically withdrawn from circulation, and the British sovereign at 97·5 piastres, as well as the French 20-franc piece at 77·15 piastres, are legal tender. The Egyptian silver coins are one piastre (about 2½d.), 2, 5, 10, and 20 piastres; the nickel coins, one, 2, and 5 milliemes, and one piastre, and the bronze coins, one-quarter and one-half millieme. 5

Weights and measures.—One oke (400 dirhems)=2·75lbs.; one kantár=36 okes=99lbs.; one diráa beledi (for stuffs)=22·8 inches; one diráa mimari (for building)=29·5 inches; one ardeb=5·4 bushels; one feddan masri=1·04 acres; one pic=6·055 square feet. 10

The metric system is in general use. Water is sold by the ton of one cubic metre, and coal by the British ton.

Communications.—Alexandria, Rosetta, Brulos, Damietta, Port Said, Ismailia, and Suez are all connected with each other, and also with Cairo, by railways. A line of railway extends from Cairo to Shellal, Wadi Halfa, and Khartum, and there is a branch from Berber to Suakin. 15

Climate.—In Egypt there are two seasons, summer from April to October, and winter from November to March. The average temperature at Cairo, July and August, is 85°, and in January 54°; at Alexandria 80° and 58°, respectively; and at Port Said 83° and 58°. The climate is uniform, dry, and salubrious. 20

The temperature of Lower (northern) Egypt is very high in summer, but the nights are cold on the coasts of the delta of the Nile. 25

Rain seldom falls in Upper (southern) Egypt, but it is not uncommon on the Mediterranean coast in winter.

KARAMANIA is the southern part of the central tableland of Asia Minor. The coast extends from Cape Alupo to Karadash burnu, the northern point of the entrance to the Gulf of Iskanderún, a distance along the coast of some 450 miles. 30

Harbours.—There are some harbours between Cape Alupo and Cape Khelidonia, available for vessels of any size, and eastward of Cape Khelidonia are many open roadsteads which afford safe anchorage in summer. 35

Supplies can be obtained at most of the anchorages, but not in a great quantity, without notice having been given to the chief of the district or village. Water, though not plentiful in some of the best harbours, can always be taken from the numerous streams. 40

Sea level.—There is no tidal rise on the coast of Karamania, but southerly and westerly winds raise the water sometimes as much as 2 feet, and northerly and easterly winds lower it similarly, above and below the normal level.

Landing.—On parts of the coast the gravel beach has become a solid petrified mass, and caution is necessary in landing where there is any surf, as the beach appears an ordinary one. The beaches are marked on the charts.

- 5 **Communication.**—There is a railway from Mersina to Adana, a distance of 36 miles.

CYPRUS, an island in the north-eastern part of the eastern basin of the Mediterranean, is 123 miles long east-north-east and west-south-west with a greatest breadth of about 45 miles; its north-eastern
10 part is a mountainous peninsula, known as the Karpass, about 37 miles long and from 8 to 2 miles broad. The area is about 3,584 square miles.

Two mountain ranges run generally west and east through the island. The southern range, which is the more extensive and lofty, culminates
15 in Mount Troodos (ancient Mount Olympus), 6,406 feet high, situated about 30 miles east-south-eastward of Cape Arnauti, the north-western extreme of the island; further eastward are Mounts Adelphi, 5,305 feet; Papoutsa, 5,124 feet; and Chionia or Machaira, 4,674 feet; and the range ends in the isolated peak, Stavrovouni (the Olympus of
20 Strabo), 2,260 feet, 10 miles westward of Larnaka. The northern range, the western part of which is the Kyrenia mountains, and the eastern part the Karpass mountains, extends from Cape Kormakiti to Cape Andreas, a distance of nearly 90 miles; its highest point is Buffavento, 3,135 feet.

25 Messaria or Mesaoria is a broad treeless plain, which extends across the island from Morphou bay to Famagusta bay, a distance of 50 miles, with a breadth of from 8 to 18 miles. The streams which traverse it are winter torrents, which descend northward from the southern range, but scarcely reach the sea. The Pediceus and Ialias lose most of their
30 flood waters in the marshes about Salamis; the Pediceus rises near Machaira and passes close to Nicosia; the Ialias rises a little eastward of the source of the Pediceus, passes through Nisou, Dali (ancient Idalion), and Pyroi, and traverses the Messaria in directions more or less parallel to the Pediceus. The Cares (Clarios), which flows from
35 the slopes of Troodos into Morphou bay, and the Dhiarrizos, which flows into the sea near Kouklia (Old Paphos), are smaller but more constant streams.

The island is much subject to drought, although water is said to be plentiful below the surface in the valleys and plains.

40 The population of the island by the census of 1911 was 274,108, of whom 20·6 per cent. were Muhammadans, and the remainder mostly members of the Orthodox Greek church.

Nicosia, near the middle of the island, with a population of 16,052 in 1911, is the capital; there is a Government hospital here; the other
45 principal towns are Larnaka, Limasol, Famagusta, Kyrenia, and Paphos.

General charts 2606, 2074.

Government.—Cyprus forms part of the British empire, having been annexed to His Majesty's Dominions in 1914.

The Government is administered under the Colonial Office, by a High Commissioner. There is a legislative council composed of eighteen members, six being official and twelve elected, the island being divided into three electoral districts, each returning one Muhammadan and three Christian members. Every inhabitant paying direct taxes has a vote. 5

For administrative and legal purposes it is divided into six districts. In each district the executive government is represented by a commissioner, and each has a Court of Law presided over by an English barrister, who is assisted by two native judges, one being a Christian and the other a Muhammadan. There is also a Supreme Court for the whole island, consisting of two judges. 10

Harbours.—Cyprus possesses no harbours for large vessels, but there is a small port at Famagusta, available for vessels of considerable size, and there are a few anchorages in open bays on the south and south-east coasts; the anchorages at Larnaka and Limasol are safe, even in winter, provided the anchors and cables are efficient. 15

Products.—Although the island is poorly cultivated the soil is very fertile. The principal products are grain of various kinds, sesame, linseed, wines and spirits, silk, olives, carobs (locust tree beans), grapes, raisins, cotton, wool, hides, aniseed, sponges, sumac leaves, terra umbra, asbestos, gypsum, and salt. Cattle, sheep, pigs, goats, ponies, poultry, mules and donkeys are bred; the mules and donkeys are of excellent quality, and the ponies are very hardy. The best wine is produced on the mountains in the south-west part of the island, near the town of Limasol, and cotton in the northern part. In 1913 the wine export was 1,114,519 gallons, and that of spirits 72,732 gallons, the bulk of the wine going to Egypt and the spirits to Turkey. 20 25 30

Trade.—The principal exports are oats, wheat, barley, raisins, pomegranates, carobs, cotton, silk, wine, cattle, donkeys, mules, sheep, and goat skins. The principal imports are wheat flour, wheat, vetches, cotton yarn, cotton piece goods, sugar, tobacco, leather, timber, olive oil, coffee, rice, iron, soap, petroleum, and various manufactured goods. The total value of exports for the year 1914 amounted to £550,239, and the imports to £569,216. 35

Communication.—A narrow-gauge railway extends from Famagusta to Morphou and Evrykhon, *via* Nicosia. The principal towns are connected by carriage roads, and there are daily motor-bus services between Nicosia, Larnaka, and Limasol. 40

Telegraph.—A British telegraph cable is laid from Larnaka to Alexandria, and land lines connect the six principal towns and also the Government summer quarters on Mount Troodos.

Currency.—The currency of the island is British gold coins, Cyprus silver coins of 18, 9, 4½ and 3 piastres, and bronze coins of one, a half, and a quarter piastre. The monetary unit is the piastre, of which 180 = £1.

5 **Weights and measures.**—One oke = 400 drams; 44 okes = one kantár; 800 okes = one ton. Two feet = one pic; 33 pics = one chain; 2,640 pics = one mile.

Climate and health.—The climate varies in different parts of the island, but generally during the greater part of the year it is
10 salubrious. The range in temperature is highest on the north and east coasts and lowest on the south and west. The summer heat is very great in the plains, and the British troops, as well as the members of the Government, live on the slopes of Mount Troodos from June to September; here, at an elevation of about 6,000 feet, the climate is
15 excellent; the temperature rarely rises above 70°, and the mountain is covered with snow from December to April. The sanitary condition of the island is good; smallpox is practically non-existent; diphtheria and enteric fever are not common; cholera and plague have never appeared; dysentery is common amongst the natives; and
20 Mediterranean fever is almost unknown, but malarial fevers are common; the inhabitants of Famagusta and Larnaka are subject to fever in autumn from the vicinity of marshes, and the natives are similarly liable in all irrigated districts.

SYRIA, on the eastern shore of the Mediterranean, extends from
25 Asia Minor on the north to Egypt on the south. It is about 360 miles long, with an average breadth of 100 miles.

A range of mountains, split in the north into two parallel chains, Lebanon and Anti Lebanon, fronts the Mediterranean, and attains heights of 6,000 feet in the north, 10,000 feet in the middle parts, and
30 3,500 feet in the south.

By the Turks and Arabs, Syria is named Belad-esh-Shaon, or “the country to the left,” in contradistinction to Belad-el-Yemen, or “the country to the right,” as these two regions so appear to the Muhammadan of Mecca, who worships with his face towards the rising sun.

35 **The coast** trends generally south-south-westward from the Gulf of Iskanderún, and is lofty and precipitous southward to the vicinity of Sûr, whence the mountains become lower and recede from the coast, which is comparatively low southward of Mount Carmel.

Harbours.—Ayas, in the Gulf of Iskanderún, and Beirút harbour are the only sheltered anchorages for large vessels on the coast; 40 Beirút is an excellent roadstead, but precaution is necessary in winter.

General charts 2074, 2606.

Trade.—The chief productions of Syria are silk, wool, cotton, barley, hides, skins, liquorice root, sesame, wine, oil, tobacco, bitumen, fruit, and sponges, the latter being procured in summer from the localities of Latakiya, Tripoli, Beirút, and Sidon by Greek divers. Cattle and sheep are plentiful and numbers are exported to Egypt. 5

The principal imports are alcohol, coal, coffee, cotton goods, woollen stuffs, flour, hardware and ironmongery, petroleum, rice, and sugar.

Communication.—A railway connects Alexandretta with Topakaleh, on the main line to Baghdad. A line connects Tripoli with Homs, on the Aleppo-Beirút line. A line runs from Beirút to Damascus. Beirút is also connected with Aleppo *viâ* Rayak. A line runs from Akka to Haifa, and from Haifa to Damascus, and Yafa is connected with Jerusalem by railway. Lines run from Damascus to Mzerib and to Medina; the latter is to be continued to Mecca, a distance of 1,100 miles from Damascus. 10 15

There is telegraph communication along the coast by land lines connected with all parts.

WINDS AND WEATHER.—Coasts of Tripoli and Egypt.—On the coast of Africa, in the vicinity of the town of Tripoli, land and sea breezes prevail from April to October, but sometimes there are strong northerly and north-easterly winds, which cause a heavy sea. The southerly land breeze generally begins from 8h. to 9h. p.m.; it continues all night and veers to the westward at sunrise; after an interval of calm, the cool north-easterly or easterly sea breeze sets in, freshens at noon, and fails at sunset. 20 25

From November to March, northerly and north-westerly winds prevail, with occasional north-easterly winds, which sometimes veer to south-east at night when the weather is fine; there is often much rain. Westerly and west-north-westerly gales are the strongest; the weather is then generally cold and clear. In January and February the winds are more moderate than in the preceding months, but in March strong gales from all directions are experienced, accompanied by squalls and rain; these are succeeded by more settled weather in April, when the land and sea breezes begin. Fog is not uncommon on this coast, especially in the morning. 30 35

In the Gulf of Sidra, north-west to north-east winds prevail, becoming northerly at the head of the gulf; the land wind hauls to the eastward on the eastern shore, and to the westward on the western shore; when from the southward the air is most oppressive and almost suffocating. Northerly gales seldom penetrate to the head of the gulf, but they cause a heavy sea on its low and sandy shore. 40

Calms are frequent, and the accumulation of vapour at this time is so considerable as sometimes to obscure the sun. The fog of the gulf is not the moist mist of the north, but a dry dense haze similar

to that which occurs in several parts of the Mediterranean during the hot season. The strange phenomena known as mirage is often seen in this gulf; the Arabs call it *saràb*.

- 5 From January to March, inclusive, hard north-easterly squalls, named *gharra*, are experienced; they are sudden, frequent, accompanied by heavy rain, thunder, and lightning, and are much feared.

Ras Sem, the eastern point of the Gulf of Sidra, appears to divide northerly winds; the wind westward of the ras becomes north-east, and eastward of it north-west.

- 10 On the coast of Derna, between Benghazi and the Gulf of Bombah, gales are often preceded by a heavy swell setting in the day before from the direction of the approaching wind. As a general rule the wind freshens quickly, and the barometer gives little warning, but the sea soon subsides after a gale.

- 15 From Ras Sem to Alexandria, westerly winds, veering through north, to east, are often violent, and sometimes begin suddenly, but usually the weather is fine. The great heat of summer is tempered by sea breezes, and the winters are remarkably mild. The winds on this coast are, to an extent, periodical; northerly winds prevail from May
20 to September, inclusive; easterly winds in October and November; and southerly and westerly in December, January, and February, when the weather becomes very variable and stormy, and north-west and west winds are often very strong; in March southerly winds prevail.

- 25 On the coast of Egypt from about October to March, north-westerly to south-westerly gales occur, and are accompanied by heavy rain. In March, the *simoom*, or hot south wind, commences and blows at intervals until May, sometimes for three or four days continuously; the air during the *simoom* is thick and heavy, with a livid tint, and the
30 heat is almost suffocating; clouds of fine dust, flies, and small insects are blown off-shore with this wind.

At the beginning of June, light easterly winds commence during the day and the sky is cloudless; in the night northerly breezes cool the air, and dew is abundant.

- 35 **Coast of Karamania.**—During summer the sea breeze is generally fresh by day, and the land breeze light at night. In April, May, and June, the weather is usually serene, with a clear sky. In July and August a white mist often occurs, limiting the visibility to a few miles. In September clouds collect to the southward, and though
40 there is no change in the wind, the mist disperses, and the weather becomes pleasant. The temperature reaches 74° in May, 86° in July, and sometimes 90° in August.

Coasts of Cyprus.—In summer the heat is very great, but then the sea breeze is moderately regular from about 8h. a.m. till from

General charts 2606, 2158b.

about 3h. to 6h. p.m.; it is succeeded by calm till about 1h. to 2h. a.m., when the land breeze begins and continues till about sunrise; these winds towards the end of summer are often very strong.

The imbatto is the sea breeze on the north-west coast of the island and the land breeze on the south-east; these breezes cease about the middle of September, and thence the period of greatest heat lasts until the latter part of October, when the rainy season usually commences and continues until April. 5

Northerly winds are very cold in winter, but warm in summer; they prevail in December and January. 10

Gales.—North-easterly gales occur in winter and south-westerly in summer, but the latter are never very severe. The winter gales usually last two or three days, and end from the south-westward. Easterly and south-easterly gales are uncommon, and when they occur they generally soon veer to the south-west. 15

Swell.—The amount of swell which accompanies the wind is often more dependent on the general weather in the Eastern Mediterranean than on local conditions; south-westerly winds which occur in winter at Larnaka are felt over a large area, and are almost always accompanied by a swell, which produces a more or less disagreeable surf on the beach, although the wind is off-shore. 20

Fog.—Fog is rare, but it occurs more often at the western end of the island than at the eastern; it appears with light southerly or south-westerly winds, and only lasts a few hours.

Temperature.—January, with a mean temperature of 51°, is the coldest month; in July and August the mean temperature is 81°. 25

Rainfall.—The rainfall is generally greatest on the north and west coasts, and on the mountains, and least on the south-east coast; approximately it is over 30 inches on Mount Troodos, between 20 and 30 inches on the slopes of Mount Troodos and on the Kyrenia and Karpas mountains, from 15 to 20 inches on the plains round Limasol, and often under 12 inches on the plains round Nicosia, Famagusta, and Larnaka. The rain falls principally from November to April, especially in November and December; July and August are dry; rain is rare and small in quantity in May, June, and September. 30 35

Coast of Syria.—Westerly winds prevail on this coast, hauling to the southward in winter, and to the northward in summer. During April and May hot southerly and easterly winds are frequently experienced, usually after a few days of calm weather; they are preceded by a low barometer, and are generally followed by rain. In May, June, and part of July south-west winds prevail. 40

From April to October land and sea breezes prevail, with occasional showers. Sometimes there is no sea breeze, and at other times it is

fresh from west-north-west to north-west, but it always fails before night, and does not set in again until about 10h. a.m. the next day. In July and August the nights are hot and calm. During summer there are sometimes north-westerly winds, which seldom blow hard. Very
5 vivid lightning in the north or north-east, with an unsettled appearance, indicates a shift of wind accompanied by heavy rain.

About the beginning of October a south-easterly wind usually sets in, and is accompanied by rain, thunder, and lightning; it veers gradually to south-west and blows hard for a day or two, after which
10 fine weather, with occasional fresh northerly winds, generally sets in until November, when gales commence. Gales are very frequent in January and February; they are indicated by a falling barometer, an overcast sky, and rain with vivid lightning, the mountains being usually covered with clouds and mist; they generally commence from
15 south-east or south, and veer to south-west in heavy squalls; if the wind remains south-west or west-south-west it may blow hard, but the sea is comparatively smooth. Should the wind, however, veer to northward of west, it will probably go to north-west, from which direction it sometimes, but rarely, blows with great violence.

20 Generally after gales or heavy rain a north to north-easterly breeze, which is occasionally fresh, sets in for a day; light westerly winds and calms succeed with a land breeze at night.

The wind sometimes differs according to the locality, thus near Ras
esh Shūka the wind may be south-west southward of the ras, while
25 the wind is north-east northward of it. North-east wind is rare southward of the ras.

In the Gulf of Iskanderūn the winds are extremely variable and often squally, sometimes blowing from all directions several times in a day. Raghiehs, which are strong easterly gales, occasionally occur
30 in winter in the vicinity of Alexandretta; they are rare, of short duration, and do not extend far from the shore. They are indicated by the clouds which envelop the summits of the mountains at the head of the gulf becoming torn and wavy, like white smoke, and projecting horizontally in feathery streaks.

35 **Fog.**—In April thick fog occurs at times on the coast of Syria which disperses towards the middle of the day.

Barometer.—The barometer on the coast of Syria is a good guide; it indicates changes of the weather, and even passing squalls. Its mean height is generally lower in summer than in winter; during
40 summer it does not rise above 29·9 inches, whilst in winter, after squally weather and rain, it sometimes rises as high as 30·02 inches, and stands above 29·9 inches, whilst the sky is clear; when it falls to 29·8 inches rain and southerly winds may follow, and below 29·7 inches bad weather.

General chart 2606.

Temperature. — The climate on the coast of Syria during summer is very fine; the temperature in May is from 60° to 76°; in June from 75° to 84°; in July from 78° to 87°; in August from 82° to 86°; in September from 78° to 86°; and in October from 74° to 83°.

5

Meteorological tables for Tripoli, Benghazi, Port Said, Famagusta, and Beirút. See Appendix III.

CURRENTS.—Coasts of Tripoli and Egypt.—The current on the coasts of Tripoli and Egypt generally sets eastward, but it is influenced by gales, so that it sometimes sets even in the contrary direction for a short time. A part of the easterly current appears to turn south-westward at Ras Sem, and run along the coast to the Gulf of Sidra.

10

During the rising of the Nile, which commences in June and ends in September, the easterly current off the coast of the delta, is much influenced by the water flowing into the sea, and often becomes variable off the Damietta mouth, but the general set is still to the eastward.

15

Coasts of Syria and Karamania.—It appears that the general easterly current on the north coast of Africa turns north-eastward and northward on the coast of Syria, where it becomes weak and variable, affected by the winds, and sometimes sets southward, but more generally northward; its rate is only occasionally, and with strong westerly winds, over one mile an hour.

20

The current on the coast of Karamania, unless affected by gales, generally sets westward, its rate increasing as the distance from the coast of Syria becomes greater. A short distance from the land it is weak, but near the coast its rate is occasionally considerable.

25

The direction and rate of the currents in the extreme eastern part of the Mediterranean are not yet thoroughly known.

30

Coasts of Cyprus.—During June, July, and August, the current usually sets eastward on the north coast of Cyprus, at a rate of from a half to one mile an hour, increasing, with strong westerly winds, to 2 miles an hour, and on the west and south coasts, between Cape Arnauti and Cape Kiti, the current generally sets eastward at a rate of from a half to three-quarters of a mile an hour.

35

On the south-eastern coast, between Cape Kiti and Cape Andreas, the current generally sets westward, but is much affected by the wind.

Buoys and beacons on the coasts of Italy are to be painted red on the port, and black on the starboard, hand, entering a port or channel. The new colouring will be applied gradually, and notice will be given as the colours are altered.

40

BRITISH EMPIRE.—Signals to be made by vessels approaching ports when inconvenienced by searchlights (Temporarily suspended).—Any vessel approaching a port in the British Empire when searchlights are being worked, and finding that they interfere with her safe navigation, may make use of the following signals, either singly or combined:—

(a) By flashing lamp, *four short* flashes followed by *one long* flash.

(b) By whistle, siren, or fog horn, *four short* blasts followed by *one long* blast.

Whenever possible, both flashing lamp signals and sound signals should be used.

On these signals being made, the searchlights will be worked, as far as circumstances will permit, so as to cause the least inconvenience, being either extinguished, raised or altered in direction.

The signals should not be used without real necessity, as unless the vessel is actually in the rays of a searchlight it is impossible to know which searchlight is affected. The signals should be repeated until the inconvenience is removed.

NOTE.—These signals are designed to assist mariners, and do not render the Government liable in any way.

PILOTAGE.—Steering commands.—The French system of steering commands, in which the terms starboard and port signify that the vessel's head is to go to starboard and port and not the helm, has been adopted by Italy.

Pilots.—Italy.—Pilot boats are painted black with a white stripe, and the word "Pilota" on the bows and stern, with, in the case of a sailing vessel, the letter "P" on each sail, and, if a steam-vessel, on each side of her funnel.

The vessels carry at the masthead by day, a square flag:—blue, white, blue, horizontally, with the letter P in blue in the middle of the white part.

Vessels requiring a pilot by day should either:—

(a) Hoist the national flag with a white border;

(b) Make the signal P. T.; or

(c) Hoist flag S.

And at night:—

(a) Burn a blue light; or

(b) Show a *white* light *occulted* at short intervals.

Pilots are forbidden to take vessels in tow.

Pilot vessels.—Lights.—Pilot vessels, when engaged on their station on pilotage duty, do not show the lights required for other vessels, but carry a *white* light at the masthead, visible all round the

General chart 2606.

horizon, and also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed *fifteen minutes*.

On the near approach of, or to other vessels, they must have their side-lights lighted, and flash or show them at short intervals, to indicate the direction in which they are heading, but the *green* light must not be shown on the port side, nor the *red* light on the starboard side. 5

A pilot vessel of such a class as to be obliged to go alongside a vessel to put a pilot on board, may show the *white* light instead of carrying it at the masthead, and may, instead of the side-lights above-mentioned, have at hand ready a lantern with a *green* glass on the one side and a *red* glass on the other, to be shown as prescribed above. 10

A steam pilot vessel, exclusively employed for the service of pilots licensed or certified by any pilotage authority or the Committee of any pilotage district, when engaged on her station on pilotage duty and not at anchor, carries, in addition to the lights required for all pilot boats, at a distance of 8 feet below her *white* masthead light, a *red* light, visible all round the horizon, and of such a character as to be visible on a dark night, with a clear atmosphere, from a distance of at least 2 miles, and also the coloured side-lights. 15

When engaged on her station on pilotage duty, and at anchor, she carries, in addition to the lights required for all pilot boats, the *red* light above mentioned, but not the coloured side-lights. Port Said pilot vessels' lights, *see* page 92. 20

Pilot vessels, when not engaged on their station on pilotage duty, carry lights similar to other vessels of their tonnage. 25

Fishing vessels.—Lights.—The following regulations with regard to fishing vessels have been adopted by the Italian Government:—

Fishing vessels and fishing boats, when under weigh, and when not required by these regulations to carry or show the lights hereinafter specified, shall carry or show the lights prescribed for vessels of their tonnage under weigh. 30

(a) Open boats, by which it is to be understood boats not protected from the entrance of sea water by means of a continuous deck, when engaged in any fishing at night with outlying tackle extending not more than 150 feet horizontally from the boat into the seaway, shall carry one all-round *white* light. 35

Open boats, when fishing at night with outlying tackle extending more than 150 feet horizontally from the boat into the seaway, shall carry one all-round *white* light, and, in addition, on approaching or being approached by other vessels, shall show a second *white* light at least 3 feet below the first light, and at a horizontal distance of at least 5 feet away from it in the direction in which the outlying tackle is attached. 40

(b) Vessels and boats, except open boats, as defined in subdivision (a), when fishing with drift-nets, shall, so long as the nets are wholly or partially in the water, carry two *white* lights where they can best be seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet, and not more than 15 feet, and so that the horizontal distance between them, measured in a line with the keel, shall not be less than 5 feet and not more than 10 feet. The lower of these two lights shall be in the direction of the nets, and both of them shall be of such a character as to show all round the horizon, and to be visible from a distance of not less than 3 miles.

Within the Mediterranean sea sailing fishing vessels of less than 20 tons gross tonnage shall not be obliged to carry the lower of these two lights; should they, however, not carry it they shall show in the same position (in the direction of the net or gear) a *white* light, visible from a distance of not less than one mile, on the approach of or to other vessels.

(c) Vessels and boats, except open boats as defined in subdivision (a), when line-fishing with their lines out and attached to or hauling their lines, and, when not at anchor or stationary, shall carry the same lights as vessels fishing with drift-nets. When shooting lines, or fishing with towing lines, they shall carry the lights prescribed for a steam or sailing vessel under weigh respectively.

Within the Mediterranean sea sailing fishing vessels of 20 tons or more gross tonnage, shall not be obliged to carry the lower of these two lights; should they, however, not carry it, they shall show, in the same position (in the direction of the lines), a *white* light visible from a distance of not less than one sea mile on the approach of or to other vessels.

(d) In fog, mist, falling snow, or heavy rainstorms, drift-net vessels attached to their nets, and vessels when trawling, dredging, or fishing with any kind of drag-net, and vessels fishing with their lines out, shall, if of 20 tons gross tonnage or upwards, respectively, at intervals of not more than *one minute* make a blast; if steam vessels, with the whistle or siren, and if sailing vessels with the fog-horn; each blast to be followed by ringing the bell.

Fishing vessels and boats of less than 20 tons gross tonnage shall not be obliged to give the above-mentioned signals; but if they do not they shall make some other efficient sound signal at intervals of not more than *one minute*.

Standard time.—Mean time of the meridian of 15° longitude east of Greenwich, or one hour before Greenwich mean time, is standard time in Tripoli. Mean time of the meridian of 30° longitude east of Greenwich, or two hours before Greenwich mean time, is standard time in Egypt, Karamania, Cyprus, and Syria.

Lloyd's signal station.—There is a Lloyd's signal station at Port Said.

Wireless telegraph.—There is a wireless telegraph station at Port Said. Wireless telegraph stations are only shown on general ocean and telegraph charts. 5

Telegraph.—There are telegraph cables from Tripoli to Malta and Syracuse; from Benghazi to Syracuse; and from Alexandria to Malta, Sitia in Crete, Larnaka, and Port Said. Excepting the coast of Africa between Derna and about 150 miles westward of Alexandria, and a part of the coast of Karamania, telegraphic communication is general from all ports mentioned in this book. 10

Coal.—The principal coaling places in the area described in this book are Alexandria, Port Said, and Beirut.

Docks.—There is a dry dock at Alexandria, and a floating dock and two patent slips at Port Said. *See Appendix I* 15

Lifeboats and life-saving stations are inserted on plans of harbours and anchorages, and not on other charts.

Tunny fisheries.—During certain seasons of the year fishing nets of large size (madragues or tonnara) are moored in places off the coast of Tripoli for the purpose of catching tunny fish. The nets are sometimes upwards of a mile off-shore, and should be avoided; in cases they are marked by buoys, to which a lantern is attached at night. 20

Consuls.—British Consuls-General, Consuls, or Vice-Consuls, are stationed at Tripoli, Khoms, and Benghazi in Tripoli, and at Alexandria and Port Said in Egypt. 25

CHAPTER II.

COASTS OF TRIPOLI AND EGYPT.—RAS ASHDIR TO EL ARISH.

Lat. 33° 10' N., Long. 11° 33' E. to Lat. 31° 6' N., Long. 33° 48' E.

VARIATION IN 1917.—Decreasing six minutes annually.

Chart 249, Mahedia to Ras Makhabez. Var. 7° 50' W.

Ras Ashdir (*Lat. 33° 10' N., Long. 11° 33' E.*), the boundary between Tunis and Tripoli, is low and not noticeable. The 10-fathom line is about 14 miles northward of the ras, and about 2 miles within this line are several rocky heads with from $4\frac{1}{2}$ to 5 fathoms water. The coast westward of the ras is described in *Mediterranean Pilot*, Vol. I.

Beacons.—A white pyramidal masonry tower, surmounted by a sphere, 52 feet high, is situated on Ras Ashdir, and bearing 191° true leads to an anchorage for small craft off the ras.

A round black metal pile, surmounted by a red cone, 11 feet high, stands on a shoal with $1\frac{1}{2}$ fathoms water about 3 miles, 8° true, from the beacon on the ras.

A round black metal pile, surmounted by a black cylinder, stands in $1\frac{1}{4}$ fathoms water, about half a mile south-south-eastward of the pile just mentioned.

Caution.—The coast between Ras Ashdir and Tripoli has not been minutely examined; caution is therefore necessary in navigation. Vessels proceeding along the coast should keep in depths of over 10 fathoms, and the coast should be approached, or left, on courses at right angles to its direction, at a moderate speed; the lead should be constantly used.

The coast of Tripoli trends south-eastward 15 miles from Ras Ashdir to the head of an inlet, the northern side of which is a low sand strip extending 8 miles west-north-westward to Ras Makhabez. The coast eastward of Ras Ashdir is higher than that westward of it, and shows some small cliffs.

Bank.—A bank, known to the local fishermen as Makhabez bank, extends, with less than 3 fathoms water, 4 miles north-eastward between Ras Ashdir and Ras Makhabez; the 5-fathom line is from one to 2 miles further seaward.

General charts 246, 2158b, 449.

Chart 249, Mahedia to Ras Makhabez. Var. 7° 50' W.

Ras Makhabez is low and sandy.

Beacon.—A mast, surmounted by three black balls placed vertically, 32 feet high, stands on Ras Makhabez.

Bou Kemesh bay is an inlet extending about 8 miles east-south-eastward within Ras Makhabez; the entrance is $1\frac{1}{2}$ miles wide and the width gradually decreases to the head. A gully with from $4\frac{1}{4}$ to $2\frac{3}{4}$ fathoms water extends about $2\frac{1}{2}$ miles within the entrance, but access is barred by the shallow coast bank. The bay is frequented by the sponge fishing craft, which obtain good shelter and water in abundance. Fort Bou Kemesh, on the south shore of the inlet, about $2\frac{1}{2}$ miles south-south-eastward of Ras Makhabez, is white.

A mole extends some 328 feet from the shore in the vicinity of the fort, and permits fishing craft to lie alongside it even at low water.

Not far from the mole is a ruin called by the natives "Bordj el Agres."

Bou Kemesh bay is a port sanctioned for the import and export of goods, through the Customs, by the Italian Government. There is a land telegraph line to Tripoli.

Buoys and beacons.—The entrance to the bay is marked by a red buoy on the eastern side and a black buoy on the western side. The channel is marked by posts, those on the eastern side being surmounted by triangles, and those on the western side by discs. There are also six black buoys on the western side of the channel, the innermost buoy being situated where the channel turns nearly 70° towards the head.

Most of the posts are in about 3 feet water, and must not be closely approached.

Ehduz bank is a group of rocky patches, with from one to $2\frac{3}{4}$ fathoms water; the south-eastern extreme of the bank lies 4 miles north-eastward from Ras Makhabez, and the bank extends north-westward about 2 miles.

Clearing mark.—Sidi Zultan open eastward of Sidi Said leads eastward of the bank.

The coast from Ras Makhabez (*Lat. 33° 7' N., Long. 11° 42' E.*) trends south-eastward about $7\frac{1}{2}$ miles, where, on a mound near the head of Bou Kemesh bay, is Sidi Said, which is 82 feet high and conspicuous; nearly 3 miles south-eastward of it is Sidi Ali, also conspicuous; $2\frac{1}{2}$ miles south-south-westward of Sidi Ali is Sidi Zultan.

Shoals.—Several patches, with from 3 to 5 fathoms water, lie within about 3 miles of the coast between Ras Makhabez and Sidi Ali (*see chart 249*). As this locality has not been thoroughly examined, caution is necessary in navigation.

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. $7^{\circ} 30' W.$

The coast from Sidi Ali trends south-eastward 13 miles to the little port of Zuara, and is low and sandy, with patches of verdure; Zuara oasis, to the westward of the port, is remarkable. The 5-fathom contour line is from one to 2 miles off the coast.

Zuara port.—The oasis terminates eastward near a dark point, which projects about a quarter of a mile, and has a *márabút* on it; the *márabút* has a double dome, and indicates the position of the port, which is open to the eastward. The town, situated in the middle of the oasis, and about a mile from the *márabút*, is surrounded with date palms; there are salt works in the vicinity.

About 5 miles south-westward of the oasis are two tombs, one of which, Sidi Melek, is conspicuous.

Zuara is a port sanctioned for the import and export of goods, through the Customs, by the Italian Government. There is a telegraph station here.

Light.—A light is exhibited from the signal mast at the Port office (*Lat. $32^{\circ} 55' N.$, Long. $12^{\circ} 8' W.$*) on Zuara peninsula.

Shoal.—A shoal, with $1\frac{1}{2}$ fathoms water, extends eastward of the dark point eastward of Zuara; its extreme was marked by a red buoy, situated $3\frac{1}{2}$ cables, 20° true, from the *márabút* with a double dome, but the buoy has been carried away; the eastern extreme of the shoal is reported to be three-quarters of a cable eastward of this position.

Anchorage.—There is anchorage off Zuara, in from $4\frac{1}{2}$ to $5\frac{1}{2}$ fathoms, mud, from three-quarters to one mile east-north-eastward of the *márabút* with a double dome; landing can be easily effected in fine weather on the coast southward of the point.

The coast from Zuara trends east-south-eastward about 18 miles to Port Zuaga; it is sandy, and about 8 miles from Zuara is a low conical hillock. Zuaga oasis lies south-westward of the port. Several rocky heads, with from one to $2\frac{1}{2}$ fathoms water, lie from one to $1\frac{1}{2}$ miles off this coast, which should be given a berth of $2\frac{1}{2}$ miles.

Plan, Port Zuaga, on chart 246.

Port Zuaga, the position of which is indicated by some cliffs, 43 to 79 feet high, on the coast, and the oasis, is a small indentation having several rocks above water off it in places, including two islets about 20 feet high, and shoal water with rocky patches extends nearly half a mile off the coast in the vicinity. Small craft obtain shelter here.

Supplies.—Good water can be obtained, and some sheep might be procured.

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 7° 30' W.

The coast from Port Zuaga (*Lat. 32° 49' N., Long. 12° 28' E.*) trends eastward about 6 miles to Old Tripoli; it is bordered in places by shoals which extend short distances.

Old Tripoli (Marsa Sabrata) is a small harbour suitable for vessels of about 100 tons and less. The village is an irregular group of huts, and the country around is fertile, with a few villages. Near the port is an old tower in ruins. 5

Tunny fishery.—A tunny fishery has been established at Old Tripoli; it extends, from a rock about $2\frac{3}{4}$ cables off the coast, a little more than a mile north-eastward; it is marked by two floating beacons on triangular bases, each with a mast carrying a white flag moored on the outer side of the body of the net; a white light is exhibited from each of these beacons at night. 10

The coast from Old Tripoli trends eastward about 20 miles, to Sidi Blal, and then turns east-north-eastward 14 miles to Tripoli; it is generally steep-to, but shoal water extends about three-quarters of a mile off-shore for about 5 miles eastward of Sidi Blal, and also westward of Tripoli. The country eastward of Old Tripoli becomes uncivilised and uncultivated; a few houses are visible from seaward. 15 20

Caution is necessary when landing on this coast, where there is liability to attack from the Arab tribes.

Sidi Blal is situated on a remarkable conical hill, 285 feet high. Between Sidi Blal and Tripoli there are three *márabúts* on the coast range—one $2\frac{1}{2}$ miles eastward of Sidi Blal; the next, Sidi Selman, $1\frac{1}{2}$ miles further eastward; and the third, Ker Kareh, 7 miles still further eastward; this is a large building near a group of date palms, and is conspicuous. 25

Plan 248, Harbour of Tripoli.

The HARBOUR of TRIPOLI is situated eastward of the point on which is the town, and between the land trending eastward from the southern part of the town, and a bank of rocky islets and reefs, named Sibun Shinel, which extends $1\frac{1}{2}$ miles east-north-eastward from the north extreme of the town. About half a mile east-north-eastward from the eastern end of Sibun Shinel, a line of reefs commences and trends north-eastward, parallel to, and at a distance of about $1\frac{1}{4}$ miles from, the coast, about 4 miles; Kaliyusha reef, the south-western of these reefs, has several rocky heads nearly awash; the sea breaks on the reefs during strong northerly winds. 30 35

The outer pass into the harbour lies between the north-eastern extreme of Sibun Shinel and the south-western extreme of Kaliyusha reef; it is about a quarter of a mile wide, with 6 fathoms least water. 40

General charts 246, 2158b, 449.

Plan 248, Harbour of Tripoli. Var. 7° 15' W.

The outer rocks above water of Sibun Shinel are connected to the coast to the south-south-eastward by rocky shoals, in the middle of which is the North channel; this channel, which leads into the harbour, is about half a cable wide, with $3\frac{1}{4}$ fathoms water, between rocky patches of $1\frac{1}{2}$ fathoms on the north and 2 fathoms on the south.

About 3 cables further south-south-eastward is the South channel into the harbour; it is narrow, with from $2\frac{3}{4}$ to 3 fathoms water.

In the harbour westward of the rocky shoals just mentioned is a considerable area with general depths of from $3\frac{3}{4}$ to 5 fathoms; the depths decrease towards the shores, and there are some patches of from $1\frac{1}{2}$ to $2\frac{3}{4}$ fathoms. The south shore of the harbour is a sandy beach, within which are palm trees for three-quarters of a mile eastward of the castle; it then becomes rocky, with low cliffs for a mile further eastward, and on this rocky shore, which is bordered by a reef of rocks awash, are ruined earthworks, a *márabút*, a Sultana's tomb with two domes, a fort, and some ancient baths in ruins.

LIGHT.—Spanish fort.—A light is exhibited, at 102 feet above high water, from an iron frame lighthouse on Spanish fort (*Lat. 32° 54' N., Long. 13° 11' E.*), situated about 2 cables north-eastward of the north extreme of the town wall.

Leading lights.—Pasha's castle.—A light is exhibited, at 52 feet above high water, from a framework, covered with boards painted white and black in bands, on the eastern side of Pasha's castle. There is a rectangular mark, painted white and black in chequers, on the sea wall below the framework for the light.

A light is exhibited, at 66 feet above high water, from an iron trellis post, 7 feet high, on a building about 130 yards, 233° true, from the preceding light.

Light.—Hamidie fort.—A light is exhibited, at 75 feet above high water, from a framework, covered with boards painted black and white in bands, on Hamidie fort.

Light-buoys.—Outer pass.—A light-buoy, exhibiting a green occulting light every six seconds, eclipse three seconds, is moored in 7 fathoms water in the Outer pass, north-eastward of the eastern extreme of Sibun Shinel.

A light-buoy, exhibiting a red occulting light every six seconds, eclipse three seconds, is moored in 6 fathoms water in the Outer pass, southward of the 5-fathom western extreme of Kaliyusha reef.

North channel.—A green light-buoy, exhibiting a green occulting light every ten seconds, eclipse five seconds, is moored on the north side of the North channel.

General charts 246, 2158b, 449.

Plan 248, Harbour of Tripoli. Var. 7° 15' W.

A light-buoy, exhibiting a *red occulting* light, is moored on the south side of North channel abreast the buoy just mentioned.

Buoys.—There are two mooring buoys in the harbour, about $3\frac{3}{4}$ and 5 cables east-south-eastward of Spanish fort. 5

Harbour works.—Moles.—A mole has been constructed 765 yards along the reefs north-eastward of Spanish fort, and the 8-foot passage about 3 cables from the fort is closed. The mole is to be extended to a distance of 1,860 yards from the fort, and an arm is to extend southward towards North channel. A mole is to be constructed from the cemetery near Hamidie fort north-westward to North channel. 10

Jetty.—Lights.—A jetty extends about $1\frac{1}{4}$ cables southward from Setif rock, which is situated $3\frac{1}{2}$ cables east-north-eastward from Spanish fort; lights are exhibited from a provisional mounting near its southern end. 15

Dredging operations are in progress in North channel, which, and a large area in the harbour, are to be deepened to 25 feet; some shoals in the harbour are being removed; vessels must avoid fouling the dredger's moorings. 20

Anchorage.—There is good anchorage, in summer, northward of the town, in from 12 to 17 fathoms, with the Spanish fort bearing about 155° true, and distant from 4 cables to a mile; this anchorage must be quitted on strong winds setting in from the northward.

A vessel, awaiting a pilot, can anchor inside the Outer pass in 5 fathoms water, with Hamidie fort lighthouse 167° true, distant about three-quarters of a mile, sheltered from north-west, but open to north-easterly winds; this is a convenient position for entering the harbour. 25

The best position in the harbour is south-eastward of Setif rock, in from 4 to 5 fathoms; the bottom is chiefly hard sand and indifferent holding ground. 30

Wharves.—There is a wharf, 350 yards long, with 23 feet water alongside; of this 160 yards has a sea wall, to which vessels of 21 feet draught can make fast; it is furnished with bollards and landing steps. There is to be a depth of 25 feet in the approach. Wharves with a length of 1,320 yards, and 25 feet water alongside, are being constructed in the south-western part of the harbour. 35

Tides.—It is high water, full and change, at Tripoli (*Lat. $32^\circ 54'$ N., Long. $13^\circ 11'$ E.*), at Xh. 20m.; springs rise 2 feet. Northerly winds raise the water, sometimes as much as 3 feet. 40

Current.—The rate of the current in the roadstead is sometimes considerable, but its direction is variable.

General charts 246, 2158b, 449.

Plan 248, Harbour of Tripoli. Var. 7° 15' W

Pilots.—A pilot will go off to a vessel making the pilot signal, but no pilot will go outside the reefs in heavy weather.

Directions.—Ker Kareh márabút (page 19) open north-west-
5 ward of the French fort in ruins on a rocky islet, about 150 yards north-westward of the town, leads north-westward of the reefs to the eastward of the town. Sibun Shinel rocks, which are above water, may be approached to the distance of half a mile.

Approach and proceed through the Outer pass with Hamidie fort
10 lighthouse bearing 167° true, passing between the light-buoys, and, if without a pilot, anchor when the south minaret of the town is in line with the lighthouse on the Pasha's castle, 233° true.

To proceed through North channel, keep the south minaret and the rectangular mark, painted black and white in chequers, on the sea
15 wall, or the lights on Pasha's castle, in line, 233° true, but as this mark leads near a 1½-fathom rock on the north side of the channel, on approaching the light-buoys steer to pass midway between them. Then gradually bring the leading mark on again, and when past a 3-fathom patch, just northward of the course and about 1½ cables inside the
20 channel, steer to the anchorage.

To proceed through South channel keep Hamidie fort lighthouse bearing 167° true, until the two domes of the Sultanas tomb appear as one, bearing 195° true. Keep this bearing on until the northern side of Spanish fort bears 274° true, which bearing leads to the anchor-
25 age.

Or, keep the Sultanas tomb bearing 195° true, as above, until the flagstaff on the northern part of the Pasha's castle bears 253° true, which leads into the harbour in 3 fathoms least water.

At night. — Approach with Hamidie fort light bearing 167°
30 true, and leave the light-buoy showing a *green occulting* light on the western side of the Outer pass, on the star-board hand, and the light-buoy showing a *red occulting* light on the port hand. The reefs of Sibun Shinel and those to the eastward generally are covered by the *red* sector of Spanish fort light, but the
35 limits pass close to the reefs. When the leading lights of Pasha's castle are in line, 233° true, keep them so, but pass midway between the light-buoys marking North channel. Continue with the leading lights in line until the *green* lights at the end of the mole (*Lat. 32° 54' N., Long. 13° 11' E.*) extending southward from Setif
40 rock bear 280° true, when steer 260° true, and anchor as convenient.

Caution.—The buoys are not to be depended on, being sometimes driven from their positions, and the leading marks are difficult to make out, therefore, no vessel of large draught should enter the harbour without a pilot.

General charts 246, 2158b, 449.

Plan 248, Harbour of Tripoli. Var. 7° 15' W.

Landing.—Caution.—Landing in boats on the south shore of the harbour is often dangerous during strong northerly winds, and when the sea breaks on Kaliyusha reef caution is necessary.

Tripoli town (ancient *Æa*), called by the natives Tarables, is situated on a rocky point, and is surrounded by a high wall, with a perimeter of about $1\frac{6}{10}$ miles, which is flanked by bastions and defended by batteries. At the south-east angle of the wall is the Pasha's castle (*Lat. 32° 54' N., Long. 13° 11' E.*), a very ancient building, now the residence of the governor. The houses are poor, and the streets irregular and narrow, but somewhat cleaner than most towns in the Levant; it contains several mosques, the minarets of which are conspicuous, synagogues, bazaars, European hotels, and a dockyard; the population includes Turks, Moors, Christians and Jews, and numbers about 40,000. View on plan 248.

The town has four gates—the Bab-el-Bahr or Sea-gate; the Bab-el-Khandak, under the castle wall; the Bab-el-Menshia, close to, and the Bab-el-Yidid, behind the Jewish quarter. The Europeans live chiefly in the quarter between the harbour gate and the town.

The country around Tripoli is very low and flat; to the westward it is sandy and barren; inland and to the eastward it is thickly covered with palm trees, interspersed with gardens and villages. The general appearance of Tripoli from seaward is striking, the whiteness of the buildings contrasting with the surrounding vegetation.

The chief occupation of the inhabitants of Tripoli is agriculture and making coarse woollen and cotton cloths, mats, and baskets. Some small vessels are built.

A British Consul-General and Vice-Consul are stationed at Tripoli.

Trade.—The imports are cloth and cotton goods, flour, sugar, timber, yarn, tea, rice, earthenware and pottery, wine, metals, hoop iron for binding esparto grass, charcoal, &c.; the exports are esparto grass, ivory, ostrich feathers, barley, sponges, cattle, sappan wood, eggs, and mats. Tripoli is a port sanctioned for the import and export of goods, through the Customs, by the Italian government.

Jetties.—There are two jetties, the Customs jetty, 120 feet long and 80 feet wide, and the Esparto jetty, 80 feet long and 40 feet wide; the depth of water alongside both is 8 feet and less.

Quarantine.—The sanitary regulations require all vessels subject to quarantine to perform it at the port of Tripoli, whether their destination be Tripoli or any other port in Tripoli territory.

Supplies.—Fresh provisions and fruit of all kinds are abundant; fish and game are plentiful. Good spring water is delivered on board

General charts 246, 2158b, 449.

Plan 248, Harbour of Tripoli. Var. 7° 15' W.

a vessel, at 8s. a ton, from tank boats. Water can be procured from a stream on the eastern side of the town, but it is muddy, brackish, has a bad smell, and should not be used. Fine Arabian horses can be obtained, and the cattle, though small, are good.

Coal.—About 1,750 tons of coal are imported annually, and about 465 tons are usually in stock, but all, except 250 tons of coal and patent fuel imported, and 40 tons in stock, is solely for use in esparto grass presses. Coaling is performed by lighters at the rate of about 200 tons a day.

Meteorological table.—See Appendix III.

Communication.—A British telegraph cable is laid to Malta, and an Italian cable to Syracuse; there is a land line along the coast westward to Bou Kemesh bay, and eastward to Derna.

Chart 246, Ras Makhabez to Benghazi.

The coast from Hamidie fort, on the south shore of Tripoli harbour, trends eastward 9 miles to Ras Tajura (*Lat. 32° 54' N., Long. 13° 24' E.*); it is sandy, and reefs extend from 1½ to 2½ miles off it for 5 miles eastward of the town; thence it is steeper, the 5-fathom line being about a mile off. There are several villages surrounded by gardens on the land between Tripoli and Tajura, and about midway on a point, is a *márabút*. Sidi Delsi, conspicuous, is situated on a hill, in the middle of a barren area, about 2 miles in extent, 8 miles eastward of Tripoli town; between the town and barren area is an oasis. Between the barren area and Ras Tajura, a short distance inland, is Tajura oasis, and Tajura village is close to Ras Tajura.

The coast from Ras Tajura to Ras Sotara, 22 miles east-south-eastward, forms a bay, which extends about 4 miles southward; the country inland is a sandy desert. A stream, the Wad al Ramil, flows through a deep valley into the middle of this bay, and affords good water at all seasons; at its mouth is a remarkable green clump, and Sidi Benmur is near it.

The coast from Ras Tajura to the Wad al Ramil is reddish-tinted sandhills; it is then very low eastward to Ras Sotara. The plains of Juma and Hassan, lying within the sandhills, are partly cultivated and afford good pasture. About 5 miles eastward of the Wad al Ramil the Wad al Demseid flows into the sea, but it dries in summer. The 10-fathom line is about 1½ miles off the coast.

Stalliman creek, 2½ miles eastward of the Wad al Demseid, affords shelter to small craft from north-westerly winds in from one to 1½ fathoms water; there are reefs awash and not visible

General charts 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. $7^{\circ} 0'$ W.

about a cable off it. A small *márabút*, surmounted by a mast, stands on the hill within the anchorage.

Ras Sotara projects half a mile from the coast; it is low, dark in colour, and rises steeply from the sea. The ras is bordered by reefs which extend about $1\frac{1}{2}$ miles westward and half a mile northward of it, with 10 fathoms water close off them. 5

The coast from Ras Sotara trends 8 miles east-south-eastward to Ras al Hamra. A stream, the Wad Ipsi, flows into the sea a mile eastward of the ras, and between the stream and Ras al Hamra rocks extend a mile off the coast in places. 10

Tunny fishery.—There is a tunny fishery about 4 miles eastward of Ras Sotara; the nets extend about $1\frac{1}{2}$ miles northward from the shore, but are laid down or removed as required.

Anchorage.—Taxant, about 4 miles eastward of Ras Sotara, affords anchorage in from $1\frac{1}{2}$ to 3 fathoms water for three or four vessels, sheltered by a series of rocks and shoals. It is entered from close to the coast to the westward. Vessels are moored head and stern. The anchorage is used as a refuge by the sponge fishers, who keep a store there. Water can be obtained by digging about 3 feet a little inland. 15 20

Ras al Hamra is reddish in colour, with a white extreme, which is very low; it is nearly steep-to.

Jebel Tarhuna extends from some 20 miles southward of Ras Tajura to some 10 miles southward of Ras al Hamra; the summits attain heights of from about 800 to 1,300 feet. 25

Caution.—Vessels off this coast in the evening, and especially during moonlight, should not stand into less than 20 fathoms water, as estimation of distance from the low land, when in the shadow of the adjacent high mountain range, is very difficult. 30

The coast from Ras al Hamra trends east-south-eastward 15 miles to Ras Elmsel (*Lat. $32^{\circ} 41'$ N., Long. $14^{\circ} 14'$ E.*); it gradually becomes higher, forming a succession of rocky points and sandy bays; on the summits of the hills inland are ruins of towers and forts. The country is well cultivated, and there are many villages on it, around which are clusters of olive trees and date palms; it is well watered by several streams, some of which are mountain torrents during the rainy season. 35

Sidi Abd el Ali is a village situated on the bank of a stream, about 6 miles from Ras al Hamra, in the midst of date palms; around it are several quadrangular forts; there is a small port here where the produce of the country is shipped in summer. Nagazi stream, which is tolerably wide, flows into the sea through a valley fronted by a sandy beach, 4 miles eastward of Abd el Ali. Eastward of the Nagazi, Jebel Selem slopes to the sea, and terminates in Ras Elmsel, close off which is a group of rocks above water. 40 45

General charts 2158b, 449.

Plan, Ras Elmsel anchorage, on chart 246. Var. $7^{\circ} 0'$ W.

Anchorage.—There is open anchorage in from 10 to 12 fathoms water about 7 cables eastward of the rocks off Ras Elmsel.

Tunny fishery.—There is a tunny fishery near Ras Elmsel, the net extending rather more than a mile north-north-eastward. A floating craft, with a mast carrying a white flag by day, and a *white* light at night, marks the outer extremity of the net.

Chart 246, Ras Makhabez to Benghazi.

The coast from Ras Elmsel trends south-eastward, 3 miles, to Ras Ligata.

Plan, Khoms bay, on chart 246.

A reef of dry rocks extends about half a cable eastward of Ras Ligata, and forms a small port, which is frequented by coasting vessels. There is a stone landing place at the point. Khoms (Homs) or Lebida and Ligata are two small villages, a short distance inland.

Around Khoms is a well cultivated plain, bounded on the north and west by fertile hills, on the summits of which are several ancient towers, the most conspicuous being Jebel Merjed or Merkop. Alfa or esparto grass is largely exported, for binding which there are steam hydraulic presses.

Supplies.—Cattle, sheep, fruit, vegetables, and fish can be obtained from Khoms and Ligata villages, and good water from a well close to the landing place. The inhabitants are civil and inoffensive, and besides cultivating the country, rear large numbers of camels, horses, oxen, sheep, and goats.

Consul.—A British Vice-Consul is stationed at Khoms.

LIGHTS.—A light is exhibited, at 85 feet above high water, from a white circular lighthouse situated about $1\frac{1}{2}$ cables westward of the landing place at Ras Ligata.

A light is exhibited from the eastern end of a mole under construction at Ras Ligata.

A light is exhibited from a lantern on a stake on the shore at the landing place.

Khoms bay.—The coast from Ras Ligata trends south-eastward 4 miles to Ras Serik, Khoms bay lying between.

Khoms bay is a place sanctioned by the Italian government for the import and export of goods through the Customs. There is a telegraph station here.

Anchorage.—There is anchorage in Khoms bay, during southerly and westerly winds, off Ras Ligata in from about 7 to 10 fathoms; the best berth is in about 8 fathoms, sand and mud, with the lighthouse bearing 237° true, distant three-quarters of a mile. This is a good position for loading or unloading cargo.

Leptis Magna (*Lat. $32^{\circ}38'$ N., Long. $14^{\circ}18'$ E.*) of the Romans, the ruins of which are now half-buried in sand, stand on the shore

General charts 246, 2158a, 449.

Plan, Khoms bay, on chart 246. Var. 7° 0' W.

south-eastward of Khoms; it was formerly surrounded by strong walls, and with its suburbs was about 4 miles in circuit. The city was divided by a river which fell into the ancient port, at the entrance to which were two strong forts; the port, however, is now filled up and the river is only a small stream. The walls enclose ruins of structures in marble, porphyry, and granite; there is also a profusion of scattered columns and other remains. 5

Chart 246, Ras Makhabez to Benghazi.

The coast from Ras Serik (Lat. 32° 37' N., Long. 14° 20' E.) trends south-eastward, 7 miles, to Ras al Tabia; it is sandy, and fronts a very fertile plain on which are a few Arab villages. The 5-fathom line is about a mile off it. A small stream flows into the sea near Ras Serik; on both sides of its mouth are several rocks, and three-quarters of a mile outside them there are depths of 5 fathoms. 15

Plan, Marsa Ugra anchorage, on chart 246.

Ras al Tabia is rocky, and about 40 feet high; there are some rocks at its foot and marshy land to the southward. Wad Khahan flows through a sandy outlet 2 miles to the southward of the ras, and in the bight between is Marsa Ugra (Magra), which is small and sheltered from the eastward by a chain of rocks lying about half a cable off the beach. It affords indifferent protection to the country boats between the rocks and the main; the southernmost of these rocks are sometimes covered. About 1½ miles up Wad Khahan are the remains of an ancient aqueduct, besides other ruins. 25

Chart 246, Ras Makhabez to Benghazi.

The coast from Marsa Ugra trends east-south-eastward about 9 miles to Ras al Zaar. A hill 197 feet high lies 4½ miles south-eastward of Marsa Ugra, and between is an indentation with 4 fathoms water about a mile off-shore; the coast then becomes steeper. 30

Ziliten.—A mile westward of Ras al Zaar is a point on both sides of which are small boat coves, but they are not safe except with the wind off-shore.

Vessels load esparto grass here.

Ziliten (Ezlitén) village stands a little within a sand ridge half a mile from the sea; it has a telegraph station, and is a place sanctioned for the import and export of goods through the Customs, by the Italian Government. 35

Fort Pannetone, which is conspicuous, stands on a hill within the coves; and on the summit of the hill there is a high wooden structure; westward of the fort there are two conspicuous groups of palms, and eastward of it are a white stone factory and a steeple, and on a rock jutting out to seaward is a small márabút. Near the coast, and under 40

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 45' W.

Fort Pannetone, there is a partly submerged jetty on which the sea breaks; it encloses a small water area, accessible by a passage 13 feet wide, which is used by boats.

- 5 **Supplies.**—Sheep, fowls, butter, oil, fruit, vegetables, corn, and fresh water may be procured in abundance.

Ras al Zaar is a bluff cliff, on which is a *márabút*; off it are several rocks both above and under water.

- The coast** from Ras al Zaar trends east-south-eastward 14 miles
10 to Ras al Yudi, and is rocky, with hard clay cliffs in places, having a ridge of sandhills behind, whence a fertile plain extends inland to the mountains. On a range of hills 8 miles southward of Ras al Zaar is the conspicuous Sidi Ali, and on the plain below are several ancient forts. The coast from 6 to 13 miles eastward of Ras al Zaar is the remarkable
15 cliff of Daas-mia or Orir, 115 to 130 feet high; there is a cutting near the western end of the cliffs, and a small conical hill at the eastern end.

- The 5-fathom contour line is nearly a mile off-shore for 4½ miles eastward of Ras al Zaar, when the coast becomes steeper; and a rocky bank
20 projects a cable off Ras Maeri, 2½ miles eastward of Ras al Zaar.

- Ras al Yudi** is not noticeable; rocks extend half a mile off it, and the coast for one mile on each side. At 3 miles eastward of the ras the sandhills on the coast rise a little, and on their summit, about 200 feet high, is a small building; between the ras and the building are
25 two small clumps of date palms.

Plan, Port Dzeira, on chart 246.

- Port Dzeira.**—Dzeira (Zoraik) village (*Lat. 32° 25' N., Long. 15° 1' E.*) stands near the sea 7 miles eastward of Ras al Yudi, and is marked by a cluster of date palms behind the sandhills in the
30 vicinity; a chain of reefs extends in places about a mile from the coast between the ras and Dzeira. At Dzeira is a projecting point with groups of rocks within about 3 and 4 cables north-eastward and eastward; within these rocks is the open port of Dzeira, with depths of from 1½ to 2½ fathoms, which affords no protection to shipping, although small country vessels resort there for water and provisions.
35 Close outside the reefs are depths of from 4 to 8 fathoms, and 3 miles off 20 fathoms.

Chart 246, Ras Makhabez to Benghazi.

- The coast** from Dzeira trends east-south-eastward about 11 miles
40 to Ras Lorug, and is bordered by rocks in places.

Port Titalita, 3 miles eastward of Dzeira, is fronted by rocks, and affords shelter to boats during easterly winds; the coast on both sides is low and sandy, with regular depths off it.

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 40' W.

The coast becomes rocky and higher about one mile eastward of the port, where the sandhills terminate. Between 6 and 10 miles eastward of Dzeira are three cliffs, which appear to be islands from a distance; the eastern cliff is Ras Misrata, the ancient Trierium or Cephelus prom. Misrata town, 5 miles west-south-westward of the ras, is surrounded by olive and palm trees; it is noted for the manufacture of carpets.

Plan, Cape Misrata anchorage, on chart 246.

RAS LORUG (Zorug) (Kasr Hamet) is a narrow low rocky point, with some reddish sand, projecting $1\frac{1}{2}$ cables eastward from the coast; the ruins of a tower stand on its outer end.

Surf has been seen half a mile off the ras, which must therefore be given a good berth.

LIGHT.—A light is exhibited from a lighthouse on a hill about 2 cables westward of the extremity of Ras Lorug.

The shore of the bay to the southward of Ras Lorug rises gradually from the ras, but soon again becomes low, and the shore white sand, within which is a palm plantation. Two low white houses, on one of which is a flagstaff, stand northward of the low white shore. The white mārābūt of Abu Sheifa stands on a rocky hill, 72 feet high, about three-quarters of a mile southward of Ras Lorug, and where the palm trees end. Marsa Abu Sheifa, the landing place, is near the low white houses, and the boats which take off cargo are often hauled up here. There is a telegraph station here.

Shoal water of from $1\frac{1}{4}$ to $2\frac{1}{2}$ fathoms extends 3 cables off the shore between Ras Lorug and Abu Sheifa mārābūt.

Anchorage.—The bay is the anchorage for Misrata town, and is a place sanctioned for the import and export of goods through the Customs by the Italian Government. Large vessels anchor about one mile westward from Ras Lorug (*Lat. 32° 22' N., Long. 15° 13' E.*), in 7 fathoms, sand and mud.

Supplies.—Sheep, poultry, fruit, vegetables, and good water can be procured.

Communication.—The land telegraph line between Tripoli and Derna passes through Misrata.

Chart 246, Ras Makhabez to Benghazi.

GULF of SIDRA (ancient Syrtis major), called by the Arabs Jun al Kabrit (Gulf of Sulphur, from the mines at the head of the gulf), is about 245 miles wide, between Ras Lorug and Benghazi, to the eastward, and 113 miles deep; the south-eastern part of the gulf is about 90 miles wide. The shores of the gulf are generally

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 30' W.

low and sandy, and rocky reefs extend off considerable distances in places. The west shore is extensive swamps and stagnant salt lagoons, but little above the sea.

5 There are no ports in the gulf, excepting for small coasting vessels, and these are but partially sheltered. There are encampments of Bedawin Arabs along the shores, at each of which is generally a well of good water, but the land is uncultivated, being marsh, sand, and barren rocks, in places without vegetation or any human habitation.

10 The sponge-fishing trade is flourishing; the season is from April to September.

Sea level.—A periodical rise of the sea level, to the extent of 2 feet occurs on the shores of the Gulf of Sidra; this rise is greater in winter than in summer, and although possibly due to lunar
15 influence it must be partly caused by the prevailing winds in the Mediterranean.

Currents.—Little is known of the currents, but they must not be disregarded; probably the prevailing set is easterly, except when influenced by easterly winds.

20 **Navigation.**—There is no particular difficulty in navigating the gulf in a steam vessel with care and attention to the soundings; sailing vessels should not become embayed, for there is an indraught on both sides of the gulf, and northerly winds cause a heavy sea.

The COAST from Ras Lorug trends south-eastward, $4\frac{1}{2}$ miles, to
25 Ras Tatila, and thence south-south-eastward about 10 miles to Ras Khara. A marsh extends from Misrata south-eastward to Zerafeh, a distance of 100 miles; its northern end is 15 miles broad, but it becomes narrower to the southward. It is level, with isolated mounds of earth and sand, and generally destitute of vegetation, consisting of
30 salt and alluvial deposits; there is one opening to the sea through which at times it becomes entirely inundated.

The coast is but little higher than the marsh, and is skirted by a few rocks. A short distance southward of Ras Tatila are some ruins.

Ras Khara (*Lat. 32° 10' N., Long. 15° 22' E.*) is prominent,
35 rocky, and darker in colour than the coast in the vicinity.

Shoals.—A patch with 6 fathoms water is situated 72° true, $6\frac{1}{4}$ miles, from Ras Khara; the sea probably breaks on the patch in heavy weather. Several small shoals, situated 2 miles east-north-eastward of Ras Khara, have 4 fathoms water, and 7 to 9 fathoms in all
40 directions within a distance of a quarter of a mile.

The COAST from Ras Khara trends south-south-eastward about 50 miles, and thence east-south-eastward, 45 miles to Marsa Zafran.

General charts 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 30' W.

Two hills, 72 feet high, are situated 7 miles southward of Ras Khara, and 12 miles further southward is Jebel Melfa, 131 feet high.

Tawaka, an Arab village, is situated about 13 miles south-westward of Ras Khara, and close to a considerable plantation of date palms on one of the mounds in the marsh. 5

Hissa, a small village, is situated 34 miles southward of Ras Khara, and Jebel Jeba, about 3 miles southward of the village, is an isolated mound, with the ruins of an Arab building on it. About 30 miles south-eastward of Jebel Jeba is a mound, on which are ruins, close to the beach, the coast between being low; Zerafeh village is 16 miles further east-south-eastward, and near the termination of the marsh. 10

The south-west shore of the Gulf of Sidra is strewn with wreckage, but there is none on the eastern shore, so it would appear that there is an indraught towards the south-western shore. 15

Hissa bank extends 8 to 20 miles seaward from the coast between Ras Khara and Marsa Zafran; at 3 miles from the beach there are from 2 to 4 fathoms water, and at 8 miles from 10 to 12 fathoms; the bottom is coral, sand, and weed.

A patch, with 9 fathoms water, lies about 8 miles south-eastward of Ras Khara, and a patch with 7 fathoms water, about $3\frac{1}{2}$ miles further south-eastward. 20

Zerid rocks.—A rocky reef projects from the beach about 20 miles south-eastward of Hissa; Zerid (Jerid) rocks (*Lat. 31° 24' N., Long. 15° 49' E.*), on which the sea breaks heavily, lie about $1\frac{1}{2}$ miles outside it, and about 3 miles from the beach. Reefs, lying 2 miles off-shore, skirt the coast for some distance on both sides of Zerafeh; the water is smooth inside them. 25

The coast eastward of Zerafeh becomes rocky, and the land higher. 30

Marsa Zabak, about 6 miles eastward of Zerafeh, is a small boat harbour lying within a reef of rocks above water, which projects a quarter of a mile to the eastward. The entrance between this reef and a reef, also above water, projecting from the shore, is 250 yards wide; inside near the western beach are depths of from 2 to 4 fathoms. Marsa Zabak is suitable only for boats, as the holding ground is bad. There is anchorage outside the harbour in about 8 fathoms water, but the holding ground here is also bad. 35

Plan, Marsa Zafran, on chart 246.

Marsa Zafran (Sirte) (Port Chebek).—About 11 miles eastward of Marsa Zabak the coast is low and almost without vegetation, but sandhills surmounted by small tufts of trees rise within the beach, at the foot of which is Marsa Zafran, an ancient port once formed by moles and artificial works, the remains of which are above water. 40 45

General charts 246, 2158b, 449.

Plan, Marsa Zafran, on chart 246. Var. 6° 15' W.

Ruins of massive walls (probably the ancient city of Aspis), and square towers on commanding eminences, stand on rising ground on the east side of the harbour.

- 5 The ruined fort; an observatory, a high wooden structure situated near the redoubt on the 72-foot height eastward of the fort; two wireless telegraph masts, also on a height; and the hospital, situated westward of the fort, are conspicuous.

The greater part of the harbour is filled with sand, and it only
10 affords shelter to boats, in from $2\frac{1}{2}$ to $3\frac{1}{2}$ fathoms water. There are two boat passages through the old mole, but with on-shore winds the sea breaks heavily on the mole, preventing communication. The landing place is at the western end of the port. The Arabs in the locality are not to be trusted.

- 15 Zafran is a place sanctioned for the import and export of goods, through the Customs, by the Italian Government.

There is anchorage in 8 fathoms northward of the fort, about 4 cables from the old mole.

- 20 **Light.**—A light is exhibited at 89 feet above high water, from a square wooden tower about a quarter of a mile eastward of the ruined fort (*Lat. 31° 13' N., Long. 16° 36' E.*).

Light-beacons.—Two wooden masts surmounted by black and white discs, and from each of which a light is exhibited at night, in line, 190° true, lead through the western passage between two rocks.

- 25 **Buoys.**—Two conical buoys have been moored in the harbour; one serves for mooring steam boats; the other is used to assist boats in warping to the landing place.

- Supplies.**—Meat and vegetables can be procured from a Bedawin village at the back of the sandhills, and good water from deep wells,
30 but they are about $2\frac{1}{2}$ miles westward of the port.

Telegraph.—The land telegraph line between Tripoli and Derna passes through Sirte, where there is a station.

Chart 246, Ras Makhabez to Benghazi.

- THE COAST** from Marsa Zafran trends eastward 10 miles, and
35 thence east-south-eastward 33 miles to Ras Soldan. There are many ancient ruins in the country, and herds of cattle, sheep, and goats may be seen on the high lands in summer. The coast is low sandhills between Zafran and Ras Denzuaga, 10 miles to the eastward. About $1\frac{1}{2}$ miles inland from Ras Denzuaga is Jebel Beni
40 el Adid, 118 feet high. The coast for about 10 miles eastward of Ras Denzuaga is a succession of low, broken cliffs, with a dark and irregular beach interspersed with frequent spaces of white sand, becoming sandy and fringed with rocks to the eastward.

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 0' W.

Jebel Nehua, 11 miles eastward of Jebel Beni el Adid (*Lat. 31° 11' N., Long. 16° 46' E.*), and one mile inland, is 180 feet high; the range from which it rises is level and covered with vegetation of a brown colour in summer.

The coast from abreast Jebel Nehua is a succession of red cliffs with intervening beaches of white sand, bordered in places with slate-coloured rocks, for 5 miles to the eastward. Jebel Nehua and these cliffs are conspicuous. Thence eastward to Ras Soldan, the coast hills are of uniform height and covered with vegetation, green in winter, brown in summer, which reaches nearly to the sea, being separated from it by a narrow sandy beach, bordered by rocky heads which extend seaward $2\frac{3}{4}$ cables in places. There are several small creeks, few of which afford landing; the best landing place is said to be on the eastern side of Ras Nahim, which is situated 16 miles eastward of Jebel Nehua, but is not noticeable.

Sultan village lies on the coast about 11 miles eastward of Jebel Nehua; to communicate with the village anchor about 4 cables off-shore half a mile westward of it.

Ras Soldan, the extreme of a headland which projects about one mile seaward from the coast line, is about 20 feet high, with an irregular front, and is bordered by a white sandy beach; it is higher than the coast in the vicinity. Medina es Soldan are extensive ruins near the ras, where good water is procurable. A few scattered rocks lie near the ras, the coast here being otherwise bold, with a depth of 10 fathoms at the distance of a mile.

The coast from Ras Soldan trends east-south-eastward 25 miles to Ras al Omja, and is low and sandy, rising a short distance inland to sandhills, with several salt lagoons between; the extensive ruins of Abu Saida are situated on the coast about midway between, and near which is a red vertical cliff, the colour contrasting with that of the other land; there are no noticeable marks except this cliff.

Jebel Mduara, 10 miles west-south-westward of Ras al Omja, is 426 feet high, flattened and badly defined.

Ras al Omja (Cape Likonta) is a bluff, blackish, flat, and steep rock, which from a distance appears like a castle in ruins, but on some bearings it looks separated from the coast. There are two points within about 2 miles southward of Ras al Omja, which appears to be known also as Ras Léueja.

Rocky spit.—A rocky spit, which rises steeply on its northern side from 15 fathoms to from 7 to $2\frac{1}{2}$ fathoms, extends eastward about 4 miles from Ras al Omja.

Buoy.—A red conical buoy is provisionally moored off the eastern end of the spit, and about $4\frac{1}{2}$ miles eastward of Ras al Omja.

General charts 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 5° 50' W.

Marsa Léueja is the anchorage southward of the spit extending eastward from Ras al Omja. There is neither safe anchorage, shelter, nor is landing possible on the coast here, in rough weather.

5 **The coast** from Ras al Omja trends south-eastward $19\frac{1}{2}$ miles, to Ras el Berek, and midway between these points are two black cliffs separated by a sandy beach; elsewhere this coast is rocky and sandy, with a line of low cliffs to seaward, which shows white patches with the sun in the east, but they are not so apparent with the sun in the west.

10 A shoal with 5 fathoms water lies about 3 miles off-shore $11\frac{1}{2}$ miles east-south-eastward of Ras al Omja, approximate position.

Ras el Berek (*Lat. $30^{\circ} 48' N.$, Long. $18^{\circ} 11' E.$*) is a black point rising to three rounded paps separated by low ground.

15 **Jebel Bengahua**, 476 feet high, is situated 4 miles inland south-westward of Ras el Berek; the summit is not easily distinguished. The hills of the range are covered with vegetation with some bare spots showing a remarkable red colour.

20 **Ras Bengahua**, $2\frac{3}{4}$ miles south-eastward of Ras el Berek, is a tongue of low land which shows white; Wad Chega, a mountain torrent, flows into a bay south-eastward of the ras through a gap which is visible from the eastward. On the hills above the ras are the wells of Kudiya, but the water is not particularly good; here there is a remarkable mound of pure gypsum. There are a few ruined buildings on the heights.

25 **Depths.**—There are depths of from 10 to 11 fathoms about one mile seaward of Ras el Berek, but off a point between Ras el Berek and Ras Bengahua there is a depth of 5 fathoms at the same distance. There are regular depths of from about 17 to 23 fathoms 5 miles seaward of the coast.

30 **Anchorage**, sheltered from west and north-west winds, can be obtained in the bay south-eastward of Ras Bengahua, in a depth of 10 fathoms, $1\frac{1}{2}$ miles, or in about 3 fathoms, half a mile, from the shore; this anchorage is not suitable for sailing vessels.

35 **Landing** can be effected on the north side of Wad Chega; its mouth is faced by a bank of shifting sand.

40 **The coast** southward of Wad Chega forms a succession of sandy creeks, separated by rocky points; the coast hills descend gradually from the Kudiya chain, with small intervening gaps. Between the beach and the brown slopes of the hills some black and dull white lines may be seen.

Ras Multaranik is situated about 30 miles south-eastward of Ras Bengahua, and the coast from 4 miles westward of, to around it, is bordered by rocks which have depths of $1\frac{3}{4}$ fathoms half a mile, and 6 to 9 fathoms a mile off it.

General charts 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 5° 45' W.

Jebel Abu Sha, about 6 miles west-south-westward of Ras Multaranik, is a part of a ridge of hills.

Ras Ali (*Lat. 30° 23' N., Long. 18° 49' E.*), about 9 miles south-eastward of Ras Multaranik, is low and unnoticeable, but from off Ras Multaranik, a bare hill appears detached from the coast in its vicinity. 5

A spit extends $1\frac{1}{4}$ cables eastward from Ras Ali; a large rock awash lies $3\frac{1}{2}$ cables eastward of the spit, with depths of from 6 to 18 feet between. Shoal ground of from 3 to 5 fathoms extends $2\frac{1}{4}$ miles east-north-eastward of the rock, terminating in a rocky head, with $3\frac{3}{4}$ fathoms water. 10

The bottom in the vicinity of the spit is sandy, with patches of weed.

Anchorage.—The spit affords no shelter, but a small bay close south-eastward of Ras Ali is protected by that portion of it which is awash, and small vessels anchor here, except with winds between north-east and south-east. 15

Landing can be effected without risk in moderate weather when the wind is northward of north-east. There are several quicksands on the beach.

Kudiya bank.—Between Ras al Omja and Muktar, a distance of 68 miles, the water shoals gradually to about a mile from the shore; the 30-fathom contour line is from 7 to 11 miles off-shore. The bottom is sand and stones. 20

Jebel Ali, 5 miles southward of Ras Ali, is two tablelands, 341 feet high. Between Jebel Ali and Jebel Muktar is a remarkable gap in the coast hills. 25

The coast from Ras Ali trends south-eastward, and is skirted by low sandhills, the country within being stony and devoid of vegetation to Jebel Muktar, a distance of 8 miles. There is a road from Muktar to the sulphur mines (al Kabrit), said to be situated $1\frac{1}{2}$ days' journey inland, and which gave their name to the Gulf of Sidra. 30

Jebel Muktar.—The coast hills rise gradually to Jebel Muktar, which is one mile inland, 115 feet high, and has some ruins on its summit, but they are scarcely visible. 35

The coast from Jebel Muktar trends east-south-eastward 12 miles to the head of the Gulf of Sidra, one mile within which is Jebel Jeriya, conical, and 105 feet high.

Jezirat Abu Sheifa, 11 miles eastward of Muktar, and nearly 2 miles from the shore, is about one-quarter of a mile in extent, 15 feet high, rocky, with reefs extending about one mile eastward and westward of it. 40

General charts 2158b, 449.

No. 1160.—CAPE MISRATA, RAS LORUG—LIGHT DISCONTINUED.

Position.—On a hill at a distance of about $2\frac{1}{4}$ cables, westward, from the extremity of Ras Lorug.

Lat. $32^{\circ} 22\frac{1}{4}'$ N., long. $15^{\circ} 13'$ E.

Description.—A flashing white light.

Remarks.—The light is to be expunged from the charts.

Chart No. 246.

Med. 5, p. 29.

Chart 246, Ras Makhabez to Benghazi. Var. 6° 40' W.

The coast becomes rocky and higher about one mile eastward of the port, where the sandhills terminate. Between 6 and 10 miles eastward of Dzeira are three cliffs, which appear to be islands from a distance; the eastern cliff is Ras Misrata, the ancient Trierium or Cephalus prom. Misrata town, 5 miles west-south-westward of the ras, is surrounded by olive and palm trees; it is noted for the manufacture of carpets.

Plan, Cape Misrata anchorage, on chart 246.

RAS LORUG (Zorug) (Kasr Hamet) is a narrow low rocky point, with some reddish sand, projecting $1\frac{1}{2}$ cables eastward from the coast; the ruins of a tower stand on its outer end.

Surf has been seen half a mile off the ras, which must therefore be given a good berth.

LIGHT.—A light is exhibited from a lighthouse on a hill about 2 cables westward of the extremity of Ras Lorug.

The shore of the bay to the southward of Ras Lorug rises gradually from the ras, but soon again becomes low, and the shore white sand, within which is a palm plantation. Two low white houses, on one of which is a flagstaff, stand northward of the low white shore. The white mārābūt of Abu Sheifa stands on a rocky hill, 72 feet high, about three-quarters of a mile southward of Ras Lorug, and where the palm trees end. Marsa Abu Sheifa, the landing place, is near the low white houses, and the boats which take off cargo are often hauled up here. There is a telegraph station here.

Shoal water of from $1\frac{1}{2}$ to $2\frac{1}{2}$ fathoms extends 3 cables off the shore between Ras Lorug and Abu Sheifa mārābūt.

Anchorage.—The bay is the anchorage for Misrata town, and is a place sanctioned for the import and export of goods through the Customs by the Italian Government. Large vessels anchor about one mile westward from Ras Lorug (*Lat. 32° 22' N., Long. 15° 13' E.*), in 7 fathoms, sand and mud.

Supplies.—Sheep, poultry, fruit, vegetables, and good water can be procured.

Communication.—The land telegraph line between Tripoli and Derna passes through Misrata.

Chart 246, Ras Makhabez to Benghazi.

GULF of SIDRA (ancient Syrtis major), called by the Arabs Jun al Kabrit (Gulf of Sulphur, from the mines at the head of the gulf), is about 245 miles wide, between Ras Lorug and Benghazi, to the eastward, and 113 miles deep; the south-eastern part of the gulf is about 90 miles wide. The shores of the gulf are generally

General charts 246, 2153b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 5° 40' W.

About 3 miles, 80° true, from the island is a rock about half a mile in extent, awash. The soundings at one mile off-shore are irregular, varying from 5 to 15 fathoms; within this distance there are several
5 rocks. In the channel between the island and the coast there are about 4 fathoms water, but the channel between the rock awash and the coast has not been examined.

The coast from the vicinity of Jebel Jeriya trends east-north-eastward 23 miles to Marsa Brega, and presents a desolate appearance; marsh, sand, and barren rocks alone meet the eye, without a
10 trace of vegetation or inhabitants.

Plan, Marsa Brega, on chart 246.

Marsa Brega (Bureiga) (*Lat. 30° 25' N., Long. 19° 35' E.*) is a sandy bay open to the northward; the western point of the bay is
15 low and flat, with a hill, 46 feet high, near it, on which is a conspicuous factory, painted yellow; from this point rocks above water and detached reefs extend one mile northward. Inland there are very high sandhills. There is a good landing at the western point in the angle between it and the inner detached rock, where sulphur
20 and other produce is shipped. It should be approached from the south-east after giving a berth of 100 yards to the east side of the inner detached rock.

Anchorage.—The anchorage is unsafe except with off-shore winds. Small vessels anchor in 4 fathoms water about a quarter of a
25 mile eastward of the north end of the inner detached rock off the point, and large vessels in 7 fathoms, about 2 miles, 42° true, from the point.

Supplies.—Fresh provisions may be obtained from the Arab encampments at the back of the sandhills. Fresh water is procured
30 by digging holes in the sand near the sea, but it is brackish and tastes of sulphur.

Chart 246, Ras Makhabez to Benghazi.

The coast from Marsa Brega trends north-eastward, 13 miles, to the foot of Mount Murato, and the hills are covered with verdure; on a bold rocky promontory eastward of the marsa, are the ruins of
35 a castle connected by walls, with several ancient excavated chambers and other remains of ancient Roman fortifications on a hill just inside it. Between are two Arab fortresses in commanding situations, and in the vicinity are several Arab encampments.

About 8 miles north-eastward of Marsa Brega west point is a conspicuous white sandstone cliff; eastward of the cliff is a deep ravine, north-eastward of which is Lahm el hinar, a conspicuous peak; a long chain of salt lakes extends up the ravine to Ain Agagna, an Arab
40 encampment. The water at the wells in the vicinity is brackish.

General charts 246, 2158b, 449.

Chart 246, Ras Makhabez to Benghazi. Var. 5° 30' W.

Shoal.—A shoal with $2\frac{1}{2}$ fathoms water, and from 12 to 15 fathoms close seaward, lies about one mile north-westward from the white cliff.

The 5-fathom line in this locality is charted about one mile from the shore, with depths of one fathom inside it. 5

Mount Murato is 246 feet high, and its summit is a regular truncated cone; its slopes are brown in summer and green in winter, the coast on both sides of it being arid and white in colour.

Jezirat Icheifa (*Lat. 30° 35' N., Long. 19° 49' E.*), a mile off the coast northward of Mount Murato, is half a mile long north and south, 40 feet high, steep on all sides, and white. 10

Shoal.—A shoal with $3\frac{3}{4}$ fathoms water lies 3 miles, 260° true, from Jezirat Icheifa.

The coast, low sandhills partially covered with vegetation, continues north-eastward 11 miles from abreast Jezirat Icheifa to a point south-eastward of Jezirat Ghara, near the sweet-water wells of Matera; it then continues low, with salt lagoons inside, to the foot of Jebel Chaua, which is 12 miles further north-eastward, and 82 feet high. 20

North-westward of Jebel Chaua and near the coast is a conspicuous house.

Caution.—Vessels are recommended not to approach the eastern shore of the Gulf of Sidra, between the parallels of 30° 25' N. and 31° 00' N., within a distance of 8 miles at night. 25

Islet.—A small islet lies close off the coast 14 miles north-eastward of Jezirat Icheifa; rocks above and below water extend $1\frac{1}{4}$ miles south-westward and $3\frac{1}{2}$ cables north-eastward from it; the channel between the islet and the coast is foul and should not be used.

Between the islet and Jezirat Ghara there is a clear channel $3\frac{1}{2}$ miles wide, with depths not less than 10 fathoms. 30

Rocks.—A group of seven rocks, awash, lies 5 miles, 341° true, from Jezirat Icheifa. The group is three-quarters of a cable long north-east and south-west, and half a cable broad; the soundings around are irregular, the depths increasing rapidly to 5 fathoms half a cable from the group except to the south-west, where there are depths of 3 fathoms for $2\frac{1}{2}$ cables from the rocks. 35

At 3 cables around the rocks there is not less than 12 fathoms water.

Chart 241, Benghazi to Derna.

Hericha or Bird rocks, 11 miles, 9° true, from Mount Murato, are a group of very low rocks and shoals extending one mile

General charts 246, 2158b, 449.

Chart 241, Benghazi to Derna. Var. 5° 30' W.

north and south; they are surrounded by sunken rocks for a distance not exceeding 3 cables.

The channel between Hericha rocks and Jezirat Ghara is clear, with the exception of a 5-fathom shoal situated midway between them.

Jezirat Ghara (Legara or Sidre) (*Lat. 30° 48' N., Long. 19° 54' E.*), 14 miles, 14° true, from Mount Murato, is about half a mile in extent, east and west, and rises to two peaks, 56 feet high; its north-eastern side is steep. The island is surrounded by rocks, which extend nearly three-quarters of a mile westward of it. Two large detached rocks lie off its south-west point.

Anchorage may be obtained in about 6 fathoms water, hard bottom, a little more than a quarter of a mile southward of Jezirat Ghara; small vessels are well sheltered here from northerly winds.

Shoals.—A shoal, with 3½ fathoms water, and 10 fathoms half a cable around, lies nearly a mile north-eastward of Jezirat Ghara.

A shoal, with 6 fathoms, and about 16 fathoms close to, lies 5½ miles north-eastward of Jezirat Ghara.

Hamud rocks, westward of Jebel Chauga, are three groups lying from three-quarters of a mile to 1½ miles from the shore, with which they are parallel. The southern group, which is the highest, is connected to the shore by a shallow spit. The sea to the south-westward of this group has been but little examined; there are, however, two sunken rocks, one three-quarters of a mile, the other 2½ miles, south-westward from this group.

The two northern groups are situated 2½ and 3 miles northward of the southern group, and the space between is obstructed by isolated rocks, with 2½ fathoms water, and from 3 to 5 fathoms around. The middle group is about a quarter of a mile in extent; some of the rocks are above water, others cover, and others have from about one to 1½ fathoms water. The northern group is two low rocks, and others which cover, occupying an area about a cable in extent; there are from 3 to 6 fathoms around.

A rocky patch, with 2 fathoms water, lies about a mile north-eastward of the northern group.

Caution.—An examination of this locality has shown that the depths are very variable, with numerous rocks; caution is necessary in navigation.

Anchorage.—Small vessels anchor on the south-eastern sides of both the southern and middle groups.

On a hill a short distance inland, 8 miles north-eastward of Hamud rocks, is the ruin of a tomb overlooking a large plain covered with brushwood; the ruins of forts stand on two hills to the north-eastward of the tomb.

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Chart 241, Benghazi to Derna. Var. 5° 30' W.

The coast from Jebel Chaua trends north-north-eastward, northward, and north-north-westward 26 miles, and forms Bueb bay. The shore of the bay is arid, bare desert, with no trace of vegetation or inhabitants, except at Marsa Vasili, about $3\frac{1}{2}$ miles northward of Jebel Chaua, where there is a redoubt with a conspicuous trellis wood tower, 98 feet high, used as an observatory, and at Zuitana, 7 miles further northward, where there are a few palms. 5

It is skirted by reefs and detached rocks, some of which lie a considerable distance off-shore. There are several small bays in which boats could find shelter. 10

Elfie rock (*Lat. 31° 10' N., Long. 20° 5' E.*), $13\frac{1}{2}$ miles, 359° true, from the northern group of Hamud rocks, was found by the S.S. *Elfie* in 1910. It is about $4\frac{1}{4}$ miles off-shore, but the position is approximate, and it has been charted as a rock with less than 6 feet water. The sea is said to break on the rock. 15

Soundings.—The 5-fathom line is about a mile off the southern part of the shore of Bueb bay, and 3 miles off the northern part.

The northern point of Bueb bay is a low and rocky cliff, and the land within it rises to Jebel Hussein, the three summits of which lie parallel to the shore, the northern summit being situated eastward of the point. 20

The coast from the northern point of Bueb bay trends north-north-westward, 8 miles, to Ras Ka Kora; it is low and sandy, rising to sandhills a short distance inland, some of which are covered with brushwood, and within them are large swamps and salt lakes. There are several creeks on the coast where boats shelter, but rocky shoals are reported to extend more than 2 miles off-shore in places. 25

Ras Ka Kora is low and rocky; there are said to be a few trees, palms, figs, and olives, and some huts on it, which are noticeable from the northward. Ka Kora bay, on the southern side of the ras, is 3 miles wide, and one mile deep, with depths of from $3\frac{1}{2}$ to 5 fathoms, sand and weed bottom. A line of sunken rocks extends a considerable distance southward from the ras, and shelters a small shallow space, frequented in summer by the boats of the Greek sponge fishers. At 7 miles eastward of Ras Ka Kora is a chain of hills, and on Jebel Mlaga, the summit, are some ruins. 30 35

Anchorage, sheltered from easterly winds, can be obtained in from 5 to 10 fathoms with the ras bearing between 0° and 45° true. Caution is necessary in navigation in this locality. 40

Ka Kora is frequented by foreign, chiefly Maltese, vessels, which load with salt produced from the salt swamps, about a mile inland; they anchor off the huts, generally in 5 fathoms water, but sometimes in $2\frac{1}{2}$ fathoms for convenience in loading.

General charts 246, 2158b, 449.

Chart 241, Benghazi to Derna. Var. 5° 30' W.

Supplies.—Water can be obtained by digging pits in places about a cable within the beach. The country is thinly inhabited, and no supplies, excepting what may be procurable from groups of stragglers, are obtainable; but northward of Ka Kora Arab encampments are numerous, and hares, partridges, pigeons, &c., abound on the hills.

The coast from Ras Ka Kora trends northward 30 miles to Ras Teyonas; it is low, sandy, and within it is an arid chain, not exceeding 80 feet in height; there are no habitations. Inland, the hills are covered with vegetation, and on some of the summits are ruins of forts or buildings. An isolated castle stands on Ghemines hill, $12\frac{1}{2}$ miles northward of Ras Ka Kora; there is a new village on the summit of this hill, where there is a palm grove. Mekali, a ruined fort, $1\frac{1}{2}$ miles inland and 15 miles northward of Ras Ka Kora, is noticeable, as are also the three palms on a point 6 miles further northward.

Beacon.—A truncated quadrangular pyramidal beacon, painted black and white in horizontal stripes, 14 feet high, and surmounted by an iron post, 8 feet high, stands on a yellow sand-dune near the coast to the westward of Ghemines castle. From a distance northward and about a mile off-shore, the beacon appears in the sea.

Ras Teyonas (*Lat. 31° 58' N., Long. 19° 57' E.*) is low, sandy, and salient. Abu Takra mārābūt, on the side of a hill about $2\frac{1}{2}$ miles south-eastward of the ras, is conspicuous, and the village 3 miles southward of the mārābūt shows well from seaward.

Shoals.—A shoal, with one fathom water, sand bottom, lies $2\frac{1}{2}$ miles south-south-westward of Ras Teyonas, and one mile off-shore.

A shoal, with one fathom water, was reported in 1874, by the S.S. *Bullfa*, to be situated about $5\frac{1}{2}$ miles, 272° true, from Ras Teyonas. The shoal was unsuccessfully searched for by H.M.S. *Torch* in 1874. It was again reported in 1878 by the Maltese brigantine *Regina Vittoria*, and the locality was subsequently examined by the U.S.S. *Gettysburg*, but no shoal water was found. Shoal water was again reported in this locality in 1904.

Soundings.—The depths within 2 miles from the coast in the vicinity of Ras Teyonas are irregular; there are shoals, with $2\frac{1}{2}$ fathoms water, $1\frac{1}{2}$ miles off-shore, and others with $1\frac{1}{2}$ fathoms one mile off. The bottom is generally sand, with patches of seaweed and some rocks. The depths fall quickly from 15 to 6 fathoms, and generally a vessel of about 15 feet or more draught should not close the coast to depths less than 10 fathoms.

The coast from Ras Teyonas trends north-eastward 9 miles to the south-western entrance point of Marsa Juliana, the port of Benghazi; it is low and sandy; north-eastward of Ras Bushaiba, which is situated about a mile south-south-westward of the south-western entrance point of Marsa Juliana is a small oasis with some palm trees.

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Chart 241, Benghazi to Derna. Var. 5° 20' W.

Between Ras Teyonas and Benghazi, at distances of from 5 to 8 miles from the shore, depths of from 30 to 45 fathoms were maintained by the *Gettysburg*. The 5-fathom line is from $1\frac{1}{2}$ to $2\frac{1}{4}$ miles off-shore.

Shoal.—The Royal Italian ship *Flavio Gioia* reported, in 1912, a shoal, with $2\frac{1}{4}$ fathoms water, situated with Ras Teyonas bearing 198° true, distant $4\frac{8}{10}$ miles.

Plan 1978, Benghazi.

Abu Shaiba reef.—From about 2 cables off Bushaiba point, Abu Shaiba, a reef of sunken rocks, extends 3 cables westward.

BENGHAZI (Bengasi) stands on the extremity of a low point nearly surrounded by salt lakes and marshes, the latter being often inundated during northerly gales; the lakes are separated by mounds and ridges of sand of from 30 to 40 feet in height, on some of which are groups of buildings or *márabút* tombs, and in the vicinity are clusters of palm trees remarkable from their being the only trees of that description found on the coast westward of Derna for several hundreds of miles, except those mentioned on pages 39 and 40.

Monument.—A conspicuous monument to the memory of the Italians who fell in the attack on Benghazi in 1911 has been erected on the south point of the entrance.

Marsa Juliana, the port of Benghazi (*Lat. $32^\circ 7' N.$, Long. $20^\circ 3' E.$*), south-westward of the town, is formed by reefs of rocks which extend off the south-western sandy entrance point, on which is a conspicuous monument, and the castle, $5\frac{1}{4}$ cables to the north-eastward. About $1\frac{1}{2}$ cables north-westward of the reefs off the south-western entrance point, with Bogaz el Juliana, a 2-fathom channel, between, is Diamanta Petro, a rocky reef, 3 feet high, which extends nearly a cable north-westward. Between Diamanta Petro and the reefs off the castle is Bogaz el Grandi, which is about a cable wide between the 3-fathom contours, but much obstructed by rocks. The depths in the marsa decrease to 2 and one fathom, but there are large areas with less than one fathom water, and there are several detached rocks. Only very small vessels can enter, even with the aid of a pilot. The sea frequently breaks right across the entrance, and the port affords no shelter in winter.

Formerly the port was much more capacious, and large vessels could anchor where now only boats can float; in the small sheltered spots there are now only from one to 2 fathoms water, and the whole of the port is fast being filled with the sand and alluvium brought down by the heavy rains which annually deluge the country from January to March. The head of the port communicates by a narrow channel with Lake Sibba, a large sheet of water, in which there are from 5 to 6 feet water.

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Plan 1978, Benghazi. Var. 5° 15' W.

The northern mole extends about 180 yards westward from the point westward of the castle, over the reefs; it then turns south-south-westward about 180 yards, and is being extended 50 yards.

5 The southern mole is planned to extend about north-north-west, 360 yards, and thence north-north-east, 340 yards from the western entrance point, and over the reefs which form the south-western side of the port; it is not yet commenced.

10 When these works are carried out, the entrance to the port between the heads of the moles will be open west-north-westward.

No vessel of more than $7\frac{1}{2}$ feet draught of water can enter the port; strong north, north-west, or westerly gales increase the depths $1\frac{1}{2}$ feet, but with light breezes from the southward the water is very low.

15 There are piers on the north-eastern side of the marsa, but they are only available for very small craft.

LIGHTS.—A light is exhibited, at 72 feet above high water, from a white masonry tower, 39 feet high, with a wall round its base, on Ras Tahun ta Ria.

20 A light is exhibited from a red metal trellis turret, 22 feet high, on the head of the mole.

Leading lights.—A light is exhibited from a structure on a white base about $1\frac{1}{2}$ cables south-eastward of the Passenger pier.

A light is exhibited from the top of a white concrete reservoir with a black vertical stripe, about 183 yards, 106° true, from the preceding
25 light. These lights in line lead into the entrance to the port.

Light.—A light is occasionally exhibited from the head of the military pier.

30 **Buoys.**—A red can buoy is moored on the eastern side of a rock with 4 feet water, situated 2 cables west-south-westward from the mole head. A red buoy, 55 yards off the mole head, marks the extreme of the extension works.

Posts.—Six groups of posts, four red and two black, mark the limits of the channels to the piers; for their positions *see* the plan.

Caution.—The buoys and posts are liable to be washed away.

35 **Anchorage.**—The best anchorage off Benghazi (*Lat. $32^\circ 7' N.$, Long. $20^\circ 3' E.$*) is from half to three-quarters of a mile north-westward of the castle in from 9 to 10 fathoms, sand and weed, and with Sairet Ben Ghisa minaret bearing about 107° true. South-westward of the town the bottom is broken and rocky, and the coast
40 should not be approached within $1\frac{1}{2}$ miles; Sairet Ben Ghisa minaret (in the middle of the town) and Algharib mārābūt in line, 64° true, when they are just open northward of the castle, leads northward of the rocky ground south-westward of Diamanta Petro.

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Plan 1978, Benghazi. Var. 5° 15' W.

The strong westerly winds, which blow almost constantly from November to the end of February, cause a very heavy sea, which renders the anchorage dangerous; during this period it is scarcely possible to remain at the anchorage, and communications with Europe are nearly completely interrupted. In the fine season, numerous steam vessels arrive and load with cereals for England and the archipelago. 5

Landing.—Eastward of the mole there is a landing stage in front of the Custom-house and a seawall on which goods are unloaded; these are approachable by boats and lighters; the depth alongside is 3 feet, but only part of the Custom-house pier, which is 180 feet long, is available. Caution is necessary in steamboats. 10

Harbour works.—Dredging is being carried out in the harbour, and the wharves have been improved and fitted with appliances for dealing with cargo. A channel, about 300 feet wide, with a depth of 13 feet, has been dredged to the southern part of the harbour. 15

Signal station.—There is a signal station about a cable eastward of the inner end of the mole (*Lat. 32° 7' N., Long. 20° 3' E.*).

Pilots.—A pilotage service is established at the Port of Benghazi, and pilotage is compulsory for merchant vessels over 50 tons, when entering, leaving, or shifting berth in the port. 20

The pilot, in answer to the pilot signal, will meet and anchor a vessel off the port, or take her to an anchorage in the port.

The pilot dues are 10 lire from dawn to sunset, and 15 lire at night, but they may be raised to double in heavy weather by the Harbour master. 25

The pilot's boat is painted black, with a white band, and the word "Pilota" on each bow. The boat carries, by day, a square flag, divided horizontally into three equal parts, of which the middle is white with the letter P, and the others blue. The sail has the letter P in the middle. 30

Directions.—In summer, north-east winds prevail on this coast; during the day they are fresh, but moderate towards evening, when the land breeze sets in. The currents follow the direction of the wind, and with strong winds attain a rate of 3 to 4 miles an hour, but they are not felt more than some 25 miles from the land. As north-easterly winds are felt as far as 40 miles from the land, vessels bound to Benghazi should make the land to the eastward of the port, or they will be carried to the south-westward by the strong current which with these winds sets along the shore into the gulf. 35 40

When approaching the port, the high land 14 miles eastward of it, on the summit of which is a tower, first becomes visible, and on a nearer approach the palm trees in the vicinity of the town, and the windmill on its northern side, near the lighthouse, may be seen, but

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Plan 1978, Benghazi. Var. 5° 15' W.

the sails of the windmill have been removed. Sairet Ben Ghisa minaret rises above the town, and is conspicuous.

Boats from the roads enter the port with the black stripe on the white reservoir of the rear leading light-structure in line with the white base of the front light-structure, 106° true. When southward of the light-turret on the mole, and of a group of red posts situated half a cable southward of the molehead, turn north-eastward, leaving the two groups of red posts nearest to the mole on the port hand, and one group of black posts on the starboard hand, to the Civil or the Custom-house pier. The least depth by this route is $1\frac{1}{4}$ fathoms.

Caution is necessary in passing a dredger working in the entrance to the port (1915).

If proceeding to the Military pier leave all the groups of red posts on the port hand, and the eastern group of black posts on the starboard hand.

The TOWN (*Lat. 32° 7' N., Long. 20° 3' E.*), situated on the site of the ancient city of Berenice, the westernmost city of the Pentapolis, is poorly built of undressed stone, with mud and lime cement; the population is about 25,000, and consists of Arabs, Greeks, Maltese, and a few Levantines. Sairet Ben Ghisa is a mosque with a high minaret, situated in the middle of the town. In the western extreme of the town is the Gasar (Castle) in ruins, only the north tower, surmounted by a signal mast, remaining visible. Remains of ancient moles can be traced amongst the rocks westward of the Gasar. On the rising land northward of the town, and on Ras Tahun ta Ria, are Sidi Sima and Sidi Kreibish, which are noticeable from seaward. View on plan 1978.

Large buildings, of recent construction, having the appearance of barracks, are situated about $2\frac{3}{4}$ miles south-eastward of the town, on a low hill behind a salt lake, between the roads to Tripoli and Derna.

North-eastward of the town is a forest of date trees, beyond which flat stony plains extend to the mountains. The quarries from which the stone was procured for building the city of Berenice are a short distance eastward of the town; near them are some remarkable pits of considerable extent, converted by the Arabs into gardens. The famous gardens of the Hesperides, and the River Lethe, or River of Oblivion, were probably in the vicinity of Benghazi.

There is a British Consul at Benghazi.

Climate.—The climate of Benghazi is mild and healthy. There is no trace of malaria; Malta fever, typhus, and dysentery are very rare. Italians residing here carry on similar kinds of work, including agriculture, to those they were accustomed to in Italy.

General charts 241, 246, 2158b, 449.

Plan 1978, Benghazi. Var. 5° 15' W.

Trade.—Benghazi is a place sanctioned for the import and export of goods, through the Customs, by the Italian Government. In 1913 the port was entered by 626 steam and 81 sailing vessels, with aggregate tonnages of 767,684 and 8,468 tons, respectively; in the first six months of the same year the exports amounted in value to £20,748, and imports to £150,000. The exports are wool, hides and skins, sheep, goats, horses, and camels; the imports are cotton cloths, sugar, wine, drugs, oil, tobacco, woollen goods, planks, &c. Trade much depends on the rainfall.

Anchorage dues are one lira per ton for foreign steam vessels; 50 c. per ton for foreign sailing vessels and Italian steam vessels; vessels belonging to countries which enjoy equality of treatment pay as Italian vessels. Loading and discharging are carried out by lighters towed by steam tugs.

Supplies.—Fresh meat, vegetables, and soft Arab bread are plentiful; fruit is scarce. Water, good but slightly brackish, is obtained from Sabri wells, and is supplied in barrels, for 10s. per 200 gallons, free alongside in boats. Ship chandlery stores are of very inferior description.

All articles, even liquids, are sold by weight, except barley and wheat, which are sold by measure, the sah = $23\frac{1}{2}$ gallons, and the chilo = $\frac{1}{2}$ sah. The oke = 40 ounces or $2\frac{1}{2}$ lbs. avoirdupois, the kantâr = 50 okes or 142 lbs.

Coal.—There are usually about 100 tons of coal dust in stock.

Repairs.—There are scarcely any facilities for repairs.

Meteorological table.—See Appendix III.

Communication.—A telegraph line along the coast between Derna and Tripoli passes through Benghazi (*Lat. 32° 7' N., Long. 20° 3' E.*).

There is a telegraph cable between Benghazi and Syracuse.

Chart 241, Benghazi to Derna.

The COAST from Benghazi trends north-eastward 20 miles, to Ras Adrian, and is low and sandy; a fertile and well-wooded plain extends inland to the foot of the mountains, which extend in a continuous chain, with an elevation of from 800 to 1,000 feet, along and gradually approach the coast. Several deep ravines, the sides of which are clothed with pine, juniper, and other shrubs, wind down towards the sea, and contain water in the rainy season. There are numerous ruins of towers and other buildings on the plain and surrounding heights, and narrow salt lakes extend parallel with coast behind the sand ridges, for 6 miles north-eastward of Benghazi.

Caution.—Between Benghazi and the vicinity of Derna the Bedawin are treacherous and thievish, and it is necessary to land armed and, if possible, in force; further eastward they are peaceful.

General charts 241, 246, 2158b, 449.

Chart 241, Benghazi to Derna. Var. 5° 10' W.

Ras Adrian, on which are some ruins, is bordered by a few rocks on both sides, which extend about three-quarters of a mile off-shore; about 4 miles inland, south of the cape, are the conspicuous ruins of a tower.

Lipsos shoal (*Lat. 32° 26' N., Long. 20° 17' E.*), 4 miles, 5° true, from Ras Adrian, is 150 feet long, and 30 feet broad, with about 3 fathoms water. The bottom appeared to consist of very soft stone covered with shells. There is a depth of 9½ fathoms between this shoal and the shoal water off the coast.

The coast from Ras Adrian trends north-eastward 14 miles, to the ruins of the city of **Taukra**, and is low and sandy, with a chain of brackish water lakes inside it.

The Arab encampment of **Berss** or **Birsis** (where there are wells) and the ruins of the town of **Mabli** are on the south-east side of the lakes. There is a white *márabút* a short distance inland about 3 miles south-westward of **Taukra**. The ruins of **Taukra** (ancient **Teuchira**) stand close to the sea on slightly elevated ground which terminates in a cliff; the massive walls which enclosed the city are about 1½ miles in circuit. The old castle, painted yellow, is the only building noticeable from seaward. Outside the walls on both sides are many large quarries and ancient tombs, which in summer are turned into habitations by the Arabs who then frequent the town.

The coast from **Taukra** trends east-north-eastward 24 miles, to **Tolmeita**, and is low and sandy, the country inland being well cultivated in places.

Caution is necessary in navigation on the coast between **Benghazi** and **Tolmeita** as there are several rocky shoals, on which the sea breaks, from one to 1½ miles off it, with deep water close outside them.

Plan, Tolmeita, on chart 241.

Tolmeita, the extensive remains of the ancient city of **Ptolemais**, is situated on a plain close to the sea at the foot of a high range of hills; it was formerly enclosed by walls of about 4 miles in circuit, of which now only the foundations can be traced; there are, however, numerous vestiges of its prosperity, including a theatre, amphitheatre, Christian church, gateway and several handsome columns, all in a tolerable state of preservation. Outside the walls are large quarries, in the sides of which are excavated tombs. The ancient port, or *kothon*, was formed between an elevated rocky point and a chain of high rocks eastward of it; round the shore are the remains of a sea wall, at each end of which is a fort. About half a mile south-westward of the point on the western side of the *kothon* is a rocky point, and along the beach between are also remains of wharves and walls.

General charts 241, 246, 2158b, 449.

Plan, Tolmeita, on chart 241. Var. 5° 0' W.

Although the port is nearly filled with sand, it still affords shelter to boats, and is by far the best landing place on the coast westward to Benghazi. Zarat, a small high rocky islet, about 2 cables eastward of the point on the western side of the kothon, is steep-to on all sides. A small white stone pyramid stands on a hill about 2 miles south-eastward of Tolmeita. View C on chart 241. 5

There is said to be a depth of not less than 16 fathoms half a mile off the coast in the vicinity of Tolmeita.

Water is obtained by the Arabs from the ancient reservoirs, many of which are in good preservation. 10

Approach.—From the north-north-westward, when about 9 miles distant, a ruined tower may be seen on the shore about a mile west-south-westward from the city, and a mile farther south-westward, a small white *márabút* with two cupolas, near which is a very high palm. From nearer the coast, the ruins of the amphitheatre are conspicuous. 15

LIGHT.—A light is exhibited, at 82 feet above high water, from a metal mast with hut, all painted red, on the summit of the point on the western side of the kothon (*Lat. 32° 43' N., Long. 20° 53' E.*). 20

There is a flagstaff near the lighthouse.

Chart 241, Benghazi to Derna.

The coast from Tolmeita trends east-north-eastward $12\frac{1}{2}$ miles, to Ras Tolmeita, and is steep and broken by the ravines from the high land. At $4\frac{1}{2}$ miles off-shore, between Tolmeita and the ras, the depths are from 150 to 200 fathoms, the bottom being very uneven and shoaling to 40 fathoms very quickly. 25

Rocks.—A rock, on which the depth has not been ascertained, lies about 3 miles, 40° true, from Tolmeita lighthouse, and one mile off-shore. It has been charted as a rock with less than 6 feet water. 30

There is said to be a reef above water about one mile off-shore 4 miles north-eastward of Tolmeita, with breakers between it and the land.

The coast from Ras Tolmeita curves eastward and north-eastward 27 miles to Ras al Hamama, and is steep and rocky, rising to the Beni Jidem range, which attains a height of 1,051 feet some 7 miles south-eastward of Ras Tolmeita. 35

Ras al Hamama, the ancient Phygus promontory, is low, and not easily distinguished from seaward; the land to the southward is high with deep ravines. About $1\frac{1}{4}$ miles southward of the ras is a conspicuous white *márabút*. 40

The coast from Ras al Hamama trends eastward $5\frac{1}{2}$ miles to Ras Sem, and is high, and broken by deep ravines which extend a long distance inland.

General charts 241, 2158b, 449.

Chart 241, Benghazi to Derna. Var. $4^{\circ} 40'$ W.

Ras Sem (Lat. $32^{\circ} 57' N.$, Long. $21^{\circ} 42' E.$) is high and bold, having behind it two ranges of hills rising one above the other, on the highest of which, about 10 miles south-south-eastward, are the ruins of the ancient city of Cyrene, 2,012 feet above the sea. This city (called by the Arabs Gureina), formerly so celebrated for its wealth and splendour, is situated on a splendid site in a beautiful and well-watered country; the fine springs from which it derives its name are as abundant as ever.

Sailing vessels bound to Alexandria in summer usually make Ras Sem, where the prevailing northerly winds turn, on the coast to the westward to north-east, and on the coast to the eastward to north-west. See Currents, page 11.

The coast from Ras Sem trends east-south-eastward, 12 miles, to Marsa Susa, and continues high and bold. A little eastward of the ras is a ravine with a stream of fresh water, which flows from the fountains of Cyrene; it also contains an abundance of firewood.

There are several rocks above water close off the coast.

Plan, Marsa Susa, on chart 241.

MARSA SUSa extends about 6 cables eastward from Ras al Susa, the western extreme of a small promontory. The kothon is a small bight on the eastern side of the promontory. Hammam and Sharkea rocks, two small islets, lie nearly 2 cables off the town; boats may find some shelter behind them, but the ground generally is foul with numerous rocks. The extensive ruins of the ancient town, Apollonia, which are still in a good state of preservation, and are noticeable from seaward, stand close to the beach on rising ground, within which a fertile plain extends to the foot of the hills about $1\frac{1}{2}$ miles inland. There is much grain cultivation in this district. Hares, partridges, and pigeons abound. View A on chart 241.

The sea here has encroached very considerably on the land. The former importance of the town is indicated by the remains of a massive wall, which surrounded it, a theatre, Christian churches, &c.

LIGHTS.—A light is exhibited, at 115 feet above high water, from a metal hut, painted black and white in horizontal stripes, on a white masonry base, which has "Susa" painted in black letters on the two seaward sides, situated on a small hill on the south-eastern side of the kothon.

A light is exhibited from an iron support on the western side of the entrance to the kothon.

Beacon.—A white wooden support, surmounted by a white triangle, stands on Tomb rock, which is situated in the central part of the bight southward of Ras al Susa.

General charts 241, 2158b, 449.

Plan, Marsa Susa, on chart 241. Var. $4^{\circ} 30'$ W.

Le Seignelay patch, on which the French war vessel of that name struck in 1888, is situated about 2 cables northward of the point westward of the kothon, and is about a cable in extent east and west, with from 3 to $4\frac{1}{2}$ fathoms water, rocky bottom, and 6 fathoms close to. 5

Shoal.—A shoal, with $1\frac{3}{4}$ fathoms water, lies about a cable northward of the north-western point of Hammam rock

Anchorage.—There is open anchorage westward of a line between Ras al Susa (*Lat. $32^{\circ} 55'$ N., Long. $21^{\circ} 56'$ E.*) and Le Seignelay patch. 10

Harbour works.—A mole is to be constructed at Marsa Susa.

Chart 241, Benghazi to Derna.

The coast from Marsa Susa trends eastward and north-eastward 10 miles to Ras Zawani, and then turns east-south-eastward 2 miles to Ras al Hilil; it is generally high and bold. 15

Breakers extend upwards of a mile off-shore, about 3 miles eastward of Marsa Susa.

Plan, Marsa el Hilil, on chart 241.

Ras al Hilil, or New Moon, so named from a round hill on the range within it, is a comparatively low rocky projection, which extends $1\frac{1}{2}$ miles from the foot of the mountains; rocks extend about a cable off it. In winter a waterfall about 2 miles southward of the ras is noticeable when on westerly bearings. 20

Marsa al Hilil, about three-quarters of a mile southward of Ras al Hilil, is a bay, which affords good shelter in from 6 to 10 fathoms, sand and weed, from winds between north-north-west, through west, to south, but a heavy sea rolls in with northerly and easterly winds. 25

In 1893 the *Davout* anchored in 25 fathoms water three-quarters of a mile, 90° true, from the observatory, where the plan shows 14 fathoms; soundings taken a quarter of a mile around the vessel gave similar differences. There are depths of 4 fathoms $3\frac{1}{2}$ cables, and 5 fathoms $4\frac{1}{2}$ cables, eastward of the observatory. 30

The shores of the bay are rocky cliffs, broken by two small bights, where there are large caves, which are conspicuous from seaward. On the south shore, which is high, is a spring of good water, at the back of which are the ruins of the ancient city of Naustathmus; some white boulders can be seen from seaward over the trees, which are thick here, and in the valleys to the eastward. 35

Chart 241, Benghazi to Derna.

The COAST from Marsa al Hilil trends southward one mile, and then turns eastward 11 miles to Turba; it is rocky and the landing bad, except in a small sandy nook about 2 miles westward of Turba. About $5\frac{1}{2}$ miles eastward of the marsa is Waaila Trum, where a fine 40

General charts 241, 2158b, 449.

Chart 241, Benghazi to Derna. Var. $4^{\circ} 20'$ W.

stream of water falls into the sea from a deep ravine, the sides of which are covered with pine, cypress, and olive trees.

The coast from Turba (*Lat. $32^{\circ} 53'$ N., Long. $22^{\circ} 23'$ E.*) trends
5 east-south-eastward 16 miles to **Ras Boasa**; it continues rocky, but the ravines are fewer and the mountains are farther inland.

Jezirat Tzor Kersah, about 7 miles east-south-eastward of Turba and $1\frac{1}{2}$ miles off-shore, are a group of two small islets, with rocks extending about a mile to the northward and eastward; the
10 passage between the islets and the shore must not be used for navigation.

Plan, Derna, on chart 241.

Ras Boasa is bordered by rocks and shoal water; the 5-fathom line is about half a mile to the north-eastward. There is a conspicuous
15 *márabút* on the ras.

LIGHT.—A light is exhibited, at 92 feet above high water, from a lighthouse, 37 feet high, on Ras Boasa.

DERNA (ancient Zephyrion).—Nearly a mile south-eastward of Ras Boasa is a low shingle point, and rocks extend about half a mile
20 off the coast between the ras and point. Derna bay, southward of the shingle point, is small, and affords shelter from westerly and southerly winds. View on chart 241.

Mole.—A mole extends about 330 yards south-eastward from the low shingle point.

25 **Light**.—A light is exhibited from an iron support on the head of the mole. It must not be closed to less than 70 yards, owing to obstructions caused by materials shifted by the sea.

Buoys.—Four conical buoys, painted red and white in horizontal stripes, mark the 3-fathom line at Derna, but they are liable to
30 drift.

About a cable off the head of the landing pier is a conical white mooring buoy for torpedo craft.

Pilotage.—A pilot will, on request by the pilot signal, indicate the most convenient anchorage for vessels arriving, by showing the
35 pilot flag, or at night a *red* light at intervals, from his boat, placed where the vessel should anchor. At night, the pilot only goes out to meet those steam vessels which have previously asked for his services, and of which the approximate time of arrival is known. The service is not compulsory, but the Harbour master can require a vessel to
40 shift berth, or may direct the pilot to take charge. The pilot will also assist vessels at anchor, or in leaving.

The pilotage charge is 10 lire by day or 15 lire at night.

Anchorage.—The best anchorage for large vessels appears to be about three-quarters of a mile off-shore in from 7 to 9 fathoms, sand

General charts 241, 244, 2158b, 449.

Plan, Derna, on chart 241. Var. $4^{\circ} 15'$ W.

and coral, but small coasters lie close inshore, where they obtain shelter from north-north-west, through west, to south-east winds, but there is no shelter from northerly and easterly winds, except such as may be given by the mole. The vessels trading between Derna and the Grecian archipelago winter at Bombah. 5

Pier.—There is a landing pier about 270 yards south-westward of the mole; a light is exhibited from the head of the pier only when landing or embarking operations are being carried on at night.

There is also a landing place in a sandy bay formed by a low point, off which are some rocks about half a mile eastward of the town. 10

Signal station.—There is a signal station near the inner end of the landing pier for the use of vessels at the anchorage; it is a wooden hut, painted black and white in chequers, with a signal mast.

The town (*Lat. $32^{\circ} 45'$ N., Long. $22^{\circ} 40'$ E.*) is situated at the mouth of a large ravine, and is surrounded by clusters of date and fig trees; a gap in the hills at the back, and a large white stone barrack, situated well to the south-eastward of the town, are conspicuous. The houses are surrounded by gardens. 15

Trade.—Derna is a place sanctioned for the import and export of goods, through the Customs, by the Italian government. The exports are chiefly wool, corn, wax, and honey, and the imports barley, coffee, flour, maize, manufactured goods, oil, rice, wheat, fruit, sugar, cotton and woollen goods and tea. 20

Supplies.—Fresh meat, fruit, and vegetables may be readily obtained; sheep and eggs and fowls are cheap. Derna is the best place between Tripoli and Alexandria for obtaining provisions. Good water can be obtained from an irrigation canal which passes close to the sandy bay about half a mile eastward of the town. 25

Communication.—The journey to Benghazi by land would take about 10 days. There is a land telegraph line along the coast to Tripoli and Bou Kemesli. 30

Chart 244, Derna to Ras Bulau.

The coast from Derna trends east-south-eastward 25 miles, to Ras et Tyn, and is bold cliffs, with high table-land close behind. 35

Ras et Tyn is lower than the adjacent cliffs to the westward. View on chart 244.

The coast from Ras et Tyn trends southward and becomes low for 9 miles, to a low point.

Close to the southward of the ras is a little cove, where small vessels load with salt. Rocks and foul ground extend about a mile seaward of Erba Aksur, a small islet, $1\frac{1}{4}$ miles southward of the ras. A bank, with 9 fathoms water, is reported about one mile south-eastward of the islet. 40

General charts 241, 244, 2158b, 449.

Chart 244, Derna to Ras Bulau. Var. $4^{\circ} 10'$ W.

This coast forms a sandy bay which affords anchorage nearly midway between the ras and Ship rock, sheltered from north, through west, to south-south-west.

5 *Plan 245, Gulf of Bombah.*

Jezirat Ehnii lie about a mile eastward of the low point just mentioned.

Ship rock, the northern one, is high, and Umm al Gharami is the southern; some rocks above water lie close on the western side of Ship
10 rock, and some sunken rocks in the middle of the channel between it and the shore.

GULF of BOMBAH.—The coast from the low point inside Jezirat Ehnii trends south-south-westward about 4 miles to Tank point. A 4-fathom patch lies about 7 cables eastward of a point $1\frac{1}{2}$ miles
15 southward of the low point. A rocky shoal projects $2\frac{1}{2}$ miles eastward from the coast for 2 miles northward of Tank point; Shag islet lies on the shoal just inside the 5-fathom line, $1\frac{1}{2}$ miles north-eastward of Tank point, and Zuzra Mezrata (Menelaus) islet lies on the shoal about one mile south-south-eastward of Shag islet; both islets are very
20 low and difficult to make out when the coast is behind them.

Tank point.—Two large and very conspicuous factories are situated on Tank point.

The shore trends westward $1\frac{4}{10}$ miles from Tank point to the entrance to a shallow lagoon, and thence it turns gradually southward
25 and eastward, and forms the Gulf of Bombah (ancient Menelaus harbour), on the north side of which, inside Tank point, is a good anchorage, but open eastward. No supplies, excepting a little water, are to be obtained here.

Jezirat el Bhurda (Bombah) (*Lat. $32^{\circ} 23'$ N., Long. $23^{\circ} 13'$ E.*),
30 about 3 miles east-south-eastward of Zuzra Mezrata, is a moderately high rock, with foul ground extending a quarter of a mile off its north-western end, and a $3\frac{1}{2}$ -fathom patch half a mile eastward from its south-eastern end. It is a good mark. View on plan 245. There is a deep water channel between the reefs off Zuzra Mezrata and
35 Bhurda.

Seal island (Emmachæ, ancient Plataæ), in the south-eastern part of the gulf and $8\frac{1}{2}$ miles south-south-eastward of El Bhurda, is very low; a kind of tower in the middle of the island may be seen, but none of the other ruins are visible. The island lies off the
40 entrance to Marsa Enharit Khurzita, in which small coasters obtain complete shelter in about 2 fathoms water, but the entrance channel is only about half a cable wide. In case of urgency a moderate-sized vessel could anchor under the lee of Seal island in about 4 fathoms water; a rocky shoal which extends nearly 6 cables north-westward
45 from the island must be avoided.

General charts 244, 2158b, 449.

Plan 245, Gulf of Bombah. Var. $4^{\circ} 0' W$.

Ras allem Dauhr (Platæa point) (*Lat. $32^{\circ} 13' N$, Long. $23^{\circ} 20' E$.*) lies about $1\frac{1}{2}$ miles south-eastward of Seal island, and is connected to it by reefs and shoal water.

Chart 244, Derna to Ras Bulau.

The coast from Ras allem Dauhr trends eastward 20 miles to Ras bel Gamma; it is low sandhills, and is fronted with rocks and foul ground, which extend from one to $1\frac{1}{2}$ miles off it in places. The coast then trends east-south-eastward 15 miles to Ras allem el Milhr, and is higher and bolder.

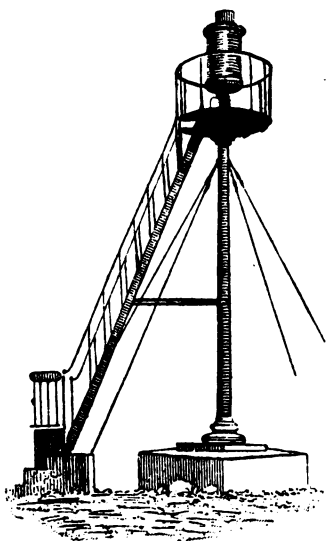
Plan, Marsa Tebruk, on chart 244.

Ras allem el Milhr.—A rocky reef is charted about 4 cables eastward of the ras, but it is reported to extend considerably further eastward, and shoaler water than charted has been reported northward of it. A mound, the summit of a hill, 574 feet high, one of the range of hills on the southern side of the entrance to the inlet, bearing 215° true, leads south-eastward of the shoals.

The coast from the ras trends south-south-westward $8\frac{1}{2}$ cables to Ras Tebruk, forming an indentation, and is bordered by rocks. A patch of sand between the ras and the point is said to be a good mark on westerly bearings.

LIGHTS.—A light is exhibited, at 36 feet above high water, from a lighthouse, a cast-iron column on a masonry base, 25 feet high, about $2\frac{1}{2}$ cables westward of Ras allem el Milhr.

A light is exhibited from a white quadrangular lighthouse, 22 feet high, on Ras Tebruk.



Ras allem el Milhr lighthouse.



Ras Tebruk lighthouse.

General charts 244, 2158b, 449.

Plan, Marsa Tebruk, on chart 244. Var. 4° 0' W.

Signal station.—There is a signal station westward of Ras allem el Milhr lighthouse.

Buoy.—A small red conical iron buoy is moored about 2½ cables south-eastward of Ras Tebruk (*Lat. 32° 4' N., Long. 24° 0' E.*).

MARSA TEBRUK is an inlet extending 2 miles west-north-westward, with a width of about three-quarters of a mile. It affords shelter, except from south-east to east winds, in from 5 to 7 fathoms water; mud and weed bottom; it is said that even with strong east or south winds the anchorage is never very bad. The marsa is a place sanctioned for the import and export of goods, through the Customs, by the Italian Government.

On the inner part of the northern shore are some Saracenic ruins, and one mile north-westward of them are some ruins, probably of ancient Anti-Pyrgos.

Depths.—There are depths of from 8 to 5 fathoms for 1½ miles within the entrance, whence the water shoals gradually towards the head. The 3-fathom line is about 1½ cables off the north shore for about 1¾ miles within Ras Tebruk, and there are two patches with 3¾ fathoms water, about a quarter of a mile off the north shore, one 8 cables, and the other 1¾ miles within the southern extreme of Ras Tebruk.

Shoal.—A small patch with three-quarters of a fathom water lies in the fairway of the inlet nearly a mile westward of the southern extreme of Ras Tebruk.

Pier.—A landing pier extends a short distance southward from the vicinity of the Saracenic ruins.

Light.—A light is exhibited from a square iron framework tower on the pier head.

Supplies.—No supplies are obtainable. Mullet can be taken by the seine in the small bights in the marsa.

Chart 244, Derna to Ras Bulau.

Ahal rocks, 5½ miles east-south-eastward from Ras Tebruk, and 2¼ miles from the shore to the southward, are a patch with 3½ fathoms water, and steep-to around.

The coast from Marsa Tebruk trends east-south-eastward with numerous narrow indentations, and rises to high tableland, for 23 miles; it then becomes lower to Ras el Ghain, 14 miles further eastward. The coast from Ras el Ghain trends east-south-eastward 20 miles to Ras al Milhr, and is low white sandhills.

Ras el Ghain is reported to project more than it is shown on the chart; near and eastward of the ras, and close to the coast, are three black objects, probably wrecks, which appear like rocks.

General charts 244, 2158b, 449.

Plan, Marsa Tebruk, on chart 244. Var. 4° 0' W.

Signal station.—There is a signal station westward of Ras allem el Milhr lighthouse.

Buoy.—A small red conical iron buoy is moored about 2½ cables south-eastward of Ras Tebruk (*Lat. 32° 4' N., Long. 24° 0' E.*).

MARSA TEBRUK is an inlet extending 2 miles west-north-westward, with a width of about three-quarters of a mile. It affords shelter, except from south-east to east winds, in from 5 to 7 fathoms water; mud and weed bottom; it is said that even with strong east or south winds the anchorage is never very bad. The marsa is a place sanctioned for the import and export of goods, through the Customs, by the Italian Government.

On the inner part of the northern shore are some Saracenic ruins, and one mile north-westward of them are some ruins, probably of ancient Anti-Pyrgos.

Depths.—There are depths of from 8 to 5 fathoms for 1½ miles within the entrance, whence the water shoals gradually towards the head. The 3-fathom line is about 1½ cables off the north shore for about 1¾ miles within Ras Tebruk, and there are two patches with 3¾ fathoms water, about a quarter of a mile off the north shore, one 8 cables, and the other 1¾ miles within the southern extreme of Ras Tebruk.

Shoal.—A small patch with three-quarters of a fathom water lies in the fairway of the inlet nearly a mile westward of the southern extreme of Ras Tebruk.

Pier.—A landing pier extends a short distance southward from the vicinity of the Saracenic ruins.

Light.—A light is exhibited from a square iron framework tower on the pier head.

Supplies.—No supplies are obtainable. Mullet can be taken by the seine in the small bights in the marsa.

Chart 244, Derna to Ras Bulau.

Ahal rocks, 5½ miles east-south-eastward from Ras Tebruk, and 2¼ miles from the shore to the southward, are a patch with 3½ fathoms water, and steep-to around.

The coast from Marsa Tebruk trends east-south-eastward with numerous narrow indentations, and rises to high tableland, for 23 miles; it then becomes lower to Ras el Ghain, 14 miles further eastward. The coast from Ras el Ghain trends east-south-eastward 20 miles to Ras al Milhr, and is low white sandhills.

Ras el Ghain is reported to project more than it is shown on the chart; near and eastward of the ras, and close to the coast, are three black objects, probably wrecks, which appear like rocks.

General charts 244, 2158b, 449.

No. 1387.—RAS EL GHAIN—ROCK WESTWARD OF.

Position.—At a distance of about $5\frac{1}{4}$ miles westward, from Ras el Ghain and about $9\frac{1}{4}$ cables from the shore.

Lat. $31^{\circ} 58' 50''$ N., long. $24^{\circ} 37' 00''$ E.

Depth.— $1\frac{1}{4}$ fathoms.

Remarks.—This rock which is of small extent is marked by a red buoy.

Chart No. 244.

Med. 5, p. 54.

Chart 244, Derna to Ras Bulau. Var. 3° 30' W.

This long extent of coast is skirted by numerous rocks, which extend about a mile off Ras el Ghain and the coast for several miles to the eastward.

Sandbanks with breakers have been reported off the coast between Ras el Ghain and Ras al Milhr. 5

Ras al Milhr (Cape Lukka) (ancient Menelau) (*Lat. 31° 53' N., Long. 25° 6' E.*) is moderately high and cliffy.

GULF or SOLLUM.—The western shore of the Gulf of Sollum from Ras al Milhr trends southward 20 miles, and is moderately high, cliffy and bold. 10

Plan, Port Bardia, on chart 244.

Port Bardia, $7\frac{1}{2}$ miles southward of Ras al Milhr, is an inlet extending about a mile south-westward with a least width of 3 cables, the depths decreasing gradually from 9 fathoms in the entrance to the head, where it forms two bights, in the eastern of which is a reef. It affords shelter to small vessels, except from north-easterly winds. Close south-westward of the inlet is a salt lagoon, in which there are eels and grey mullet, and on the southern side of the lagoon about half a mile from the beach is a well used by the Arabs, who have an encampment here. 15 20

Plan, Akaba es Sollum on chart 244.

Beacon point, a small projection, 36 feet high, is about 12 miles southward of Port Bardia; the high and cliffy coast ends here, and it becomes low. 25

Akaba es Sollum, the anchorage of Sollum, is situated to the southward of Beacon point, and affords shelter from westerly winds, in 8 fathoms, sand and weed, about 4 cables southward of the southern extreme of Beacon point. A patch, with 3 fathoms water, lies just within the 5-fathom line, 7 cables, 204° true, from the southern extreme of Beacon point. 30

Sollum is near the boundary between Tripoli and Egypt, and a pilgrim's road to Mecca runs close along the beach.

Chart 244, Derna to Ras Bulau.

The COAST OF EGYPT.—The southern shore of the Gulf of Sollum from Sollum anchorage trends eastward about 42 miles to Ras Haleima (Alem Ghomed); it is low and sandy, with occasional rocky points, and is bordered by rocks in many places. An area, from about 10 to 18 miles eastward of Beacon point, has not been examined. 35

The coast from Ras Haleima trends east-south-eastward, 53 miles to Ras Bulau; it is low and backed by small sandhills, with rocky reefs and foul ground extending off and along it. 40

General charts 244, 2606, 2158b, 449.

Chart 244, Derna to Ras Bulau. Var. $3^{\circ} 15'$ W.

Taifa rock, about 15 miles eastward of Ras Haleima, and $2\frac{1}{4}$ miles off-shore, is 5 feet high, with sunken rocks around, and deep water close to.

5 *Plan, Ishaila rocks and anchorages, on chart 244.*

Ishaila rocks and anchorage.—Nearly 20 miles eastward of Taifa rock, and $1\frac{3}{10}$ miles off-shore, is Jezirat Ishaila (*Lat.* $31^{\circ} 32' N.$, *Long.* $26^{\circ} 39' E.$), a rock or islet about 58 feet high, and from it reefs extend 2 miles west-south-westward. There is anchorage in case
10 of urgency in 16 fathoms, sand, about 3 cables southward of the islet. Great caution is necessary in navigation as much of the ground in this locality has not been surveyed.

About $1\frac{3}{10}$ miles east-south-eastward of Jezirat Ishaila is a reef, and reefs in patches continue along the coast for about 10 miles to the
15 eastward.

Chart 244, Derna to Ras Bulau.

Caution is necessary in navigation between Ras Haleima and Ras Bulau, the coast being low and the soundings deep close to the reefs; in places the 100-fathom line is less than a mile off them, and three-
20 quarters of a mile northward of the western Ishaila rock there is a depth of 140 fathoms.

Chart 374, Ras Bulau to Alexandria.

Ras Bulau (ancient Naten) is moderately high and clifty; a range of hills runs some 7 miles southward from it, and attains a
25 height of about 500 feet.

A rocky bay, the shores of which are high, lies between Ras Bulau and Ras Ummrakum (ancient Zephyron promontory), 5 miles south-eastward.

• *Plan, Marsa Ummrakum, on chart 374.*

30 **Marsa Ummrakum**, on the eastern side of Ras Ummrakum, affords shelter from northerly and westerly winds, inside a line of rocky reefs extending nearly $2\frac{1}{4}$ miles eastward from Ras Ummrakum; Ummrakum reef, the eastern part of the line, is partly above water, and from about 7 cables east-south-eastward of it reefs continue about
35 a mile east-south-eastward. The anchorage is about 4 cables south-eastward of the highest part of Ummrakum reef in from 8 to 10 fathoms, sand, but it would be dangerous to attempt to enter it without a boat or boats ahead sounding. The shores of the marsa are low. About three-quarters of a mile inland on the southern shore, and
40 4 miles from Ras Ummrakum, is an Arab village built on the site of ancient Delphinon.

Chart 374, Ras Bulau to Alexandria.

The coast from $4\frac{1}{2}$ miles eastward of Ras Ummrakum trends eastward nearly 3 miles to Ras Labeit; it is clifty and bordered by rocks; 45 the ras is low.

General charts 374, 244, 2606, 2158b, 449.

Plan 3567, Marsa Matruh. Var. 3° 10' W.

Marsa Matruh, eastward of Ras Labeit, is an indentation in the coast $1\frac{6}{10}$ miles long east and west, and 7 cables deep; it is completely sheltered from seaward by a reef and rocks extending $1\frac{3}{4}$ cables eastward from Ras Labeit, the western entrance point, and by Matruh reef, a line of small islets, rocks, and reefs, upon which the sea breaks heavily, extending half a mile westward from the eastern entrance point. Several of the rocks of Matruh reef are awash, and on the largest islet is a conspicuous white rock 6 feet high; there are three passes through Matruh reef available for boats in fine weather. 5 10

The western shore of the marsa is flat sand, subject to inundation and change; the southern shore is low sandhills, with some cliffs from 5 to 20 feet high, and a conspicuous cairn 30 feet high in the middle; eastward of the cairn are coastguard houses, barracks, and other buildings; the eastern shore is flat sand, subject to inundation. 15

A conspicuous coastguard fort, with a flagstaff, stands on the eastern entrance point, about 4 cables from its extreme.

On the southern shore are the ruins of the ancient Parætonium, and both westward and eastward of the marsa is a large salt lagoon.

A shoal extending southward from Matruh reef occupies the central part of the marsa; it is studded with rocks, on which are from 2 to 3 feet water, with from 6 to 7 feet between. On the eastern side of the shoal is a stone breakwater which extends 210 yards south-westward, and then turns southward 90 yards. Eastward of the breakwater is a pool, about a quarter of a mile in extent, with depths of 24 to 47 feet, in which there is anchorage. 20 25

Entrance.—Beacons.—The entrance, between the rocks extending eastward from Ras Labeit, and Matruh reef, is one cable wide. Pole beacons stand on the outer rocks on each side. The depth in the entrance is from 19 to 30 feet. 30

Channel.—A channel, partly formed by dredging, with a least width of half a cable and a least depth of 16 feet, leads, westward and southward of the central shoal, to the pool eastward of the breakwater (*Lat. 31° 23' N., Long. 27° 15' E.*).

Leading beacons.—Pole beacons, surmounted by triangles, stand on the south-western shore of the marsa, and in line, bearing 230° true, lead through the entrance; similar beacons on the south-eastern side in line, bearing 88° true, lead through the channel southward of the central shoal. 35

Buoys.—Seven black conical buoys mark the western and southern sides of the channel, and six conical buoys, painted black and white in horizontal stripes, mark the eastern and northern sides of the channel. A mooring buoy lies in 29 feet water $2\frac{3}{4}$ cables, 40

General charts 374, 244, 2606, 2158b, 449.

Plan 3567, Marsa Matruh. Var. 3° 10' W.

95° true, from the end of the breakwater. The positions of the buoys marking the channel are liable to change.

- Directions.**—Enter with the leading beacons on the south-western shore of the marsa in line, 230° true. When past the pole beacon on the outer end of Matruh reef, turn southward and pass between No. 1 black and No. 1 black and white horizontally-striped buoys; then steer south-south-eastward between the buoys until between No. 5 pair, when keep the eastern beacons in line, bearing 88° true, until abreast No. 6 striped buoy; then steer about 50° true, and pass some 40 yards north-westward of No. 7 black buoy, whence proceed direct into the pool eastward of the breakwater.

- Small vessels anchor in 27 feet inside the entrance, eastward of the first pair of channel buoys, and 204° true, nearly 1½ cables from the beacon on the outer end of Matruh reef.

The depths in the marsa are liable to change during heavy weather.

Tides.—Springs rise one foot, neaps half a foot; water banks up in the marsa during strong northerly and westerly winds.

Chart 374, Ras Bulau to Alexandria.

- The coast** from the eastern entrance point to Marsa Matruh trends eastward 6 miles to Ras alem Rum, and is rocky and skirted with outlying rocks.

- Ras alem Rum** (ancient Parætonium promontory) is the termination of a hilly spur from the apex of two ranges of hills, which run westward and southward; the latter range attains a height of about 300 feet.

- The coast** from Ras alem Rum trends southward 8 miles, and then eastward 27 miles to Ras el Kanais; it is deeply indented by small sandy bays. A range of hills and table-land extends, 2 to 3 miles inland, eastward from some 11 miles southward of Ras alem Rum nearly to Ras el Kanais; the western part is about 600 feet high.

Medina reefs extend south-south-eastward along, and distant 2 to 3 miles from, the coast between 2 and 8 miles southward of Ras alem Rum.

- Plan, Marsa Bakshuba, on chart 374.*

- Ras Bakshuba** (ancient Ladamanten promontory) (*Lat. 31° 12' N., Long. 27° 39' E.*), 18 miles south-eastward from Ras alem Rum, is a bluff white headland; shoal water extends 4 cables northward of the ras, and a rocky reef about 3 cables north-eastward. Jezirat Bakshuba, 4 cables south-south-eastward of the ras, is about 2½ cables long east and west, and surrounded by rocks; a spit with from one to 2¾ fathoms water extends half a mile east-south-eastward from the island.

General charts 374, 244, 2606, 2158b, 449.

Plan, Marsa Bakshuba, on chart 374. Var. 3° 0' W.

Marsa Bakshuba, southward of the island, affords shelter from north-westerly and westerly winds, but the holding ground is not good. The anchorage is about half a mile southward of the eastern end of the island in 5 fathoms, sand; a little to the northward of this position the bottom is rocky. 5

Supplies.—Sheep, &c., may be obtained from the Arabs in this vicinity, but only at extravagant prices.

Sketch, Marsa Dakalla, on chart 374.

Marsa Dakalla (ancient Zygren), about $2\frac{1}{2}$ miles eastward of Marsa Bakshuba, is a small boat harbour, with depths of from one to 3 fathoms, lying inside a line of rocks, which extends between two jutting-out points; there are three narrow entrances into the marsa, the eastern of which has 3 fathoms water. 10

Bluff point, the eastern point, is a large black rock, which shows clearly against the sandhills behind. 15

Chart 374, Ras Bulau to Alexandria.

Ras el Kanais (ancient Leuce Acte).—There is a remarkable gap in the land a short distance inside the ras, which appears as an island from a distance of about 10 miles on some bearings; from nearer the ras the black rocks skirting it show against the white sandhills. View B on chart 374. 20

GULF of KANAIS.—The coast from Ras el Kanais trends southward $8\frac{1}{2}$ miles, and then turns eastward 29 miles to Ras et Dhabba (ancient Zephirium). El Homfis, high rocks, surrounded by a reef, lie $6\frac{3}{4}$ miles southward of Ras el Kanais and one mile off-shore; there are depths of 4 and 6 fathoms inside the reef. El Egaili (ancient Pidonia) islet, $7\frac{1}{4}$ miles farther eastward, is on the middle of Gregrien reef, which connects it to the shore and projects one mile to the eastward; the eastern end of the reef is nearly a mile off-shore, with 3 and 5 fathoms water between. 25 30

Abu Jerab (ancient Trakhea) (*Lat. 31° 6' N., Long. 28° 10' E.*) is the coast which extends 4 miles eastward from $3\frac{1}{4}$ miles eastward of Gregrien reef; it is a line of remarkable black cliffs, with hills close inland 100 feet high. 35

Sambra reef (ancient Myrmiki), 4 miles eastward of Abu Jerab, is one mile long east and west and the same distance off-shore. Abu Sambra cliff is about $1\frac{1}{2}$ miles long; its western end lies about one mile south-eastward of the eastern end of the reef.

ARAB'S GULF is the great indentation in the coast between Ras et Dhabba and Alexandria, 73 miles to the eastward; the gulf extends 18 miles to the southward. 40

General charts 374, 2606, 2158b, 449.

Chart 374, Ras Bulau to Alexandria. Var. 2° 45' W.

The coast from Ras et Dhabba trends east-south-eastward 20 miles to Ras el Gabisa (Gahbess), and is skirted by reefs.

Reef.—A rocky reef extends nearly a mile eastward from a small
5 jutting out point about $1\frac{1}{2}$ miles south-eastward of Ras et Dhabba.

Tanub reef projects eastward and south-eastward nearly 2 miles from a point 6 miles south-eastward of Ras et Dhabba; it is nearly awash, and the outer edge is about a mile off-shore; there is a depth
10 of 4 fathoms three-quarters of a mile eastward of the reef, and the 100-fathom line is $1\frac{1}{2}$ miles north-eastward of the reef.

Reefs extend nearly a mile and half a mile, respectively, off two points, situated about 13 and 16 miles east-south-eastward of Ras et Dhabba.

Patch.—A $3\frac{1}{2}$ -fathom patch lies $2\frac{1}{2}$ miles north-westward of Ras
15 el Gabisa; there are from 6 to 14 fathoms water close northward of it.

Gahbess reef, $1\frac{1}{4}$ miles northward of Ras el Gabisa, is awash, and shoal water extends 3 cables northward from it.

The coast from Ras el Gabisa (*Lat. 30° 58' N., Long. 28° 50' E.*) turns southward and eastward to El Amaid, and is skirted by shoals.

Anchorage.—There is shelter from westerly winds in from 4 to
20 5 fathoms water, with Ras el Gabisa bearing about 299° true, distant $1\frac{1}{4}$ miles.

Shkeik reef.—Ras Shkeik lies nearly 5 miles south-south-eastward of Ras el Gabisa, and Shkeik reef extends nearly 3 miles north-
25 eastward, and 2 miles eastward from it.

Shimahme banks.—Junil Meleha is a hill rising close within a point, situated 7 miles east-south-eastward of Ras Shkeik, and the Shimahme banks, with about one fathom water, extend $2\frac{1}{2}$ miles north-eastward of the point, and from about 4 miles to $1\frac{1}{2}$ miles off the coast
30 eastward to El Amaid, a distance of nearly 9 miles.

El Amaid (Almaida), $20\frac{1}{2}$ miles east-south-eastward of Ras el Gabisa, is a conspicuous ruined square two-storied tower, standing on the low hills half a mile from the beach; about 5 miles southward of the tower is a range of hills, of which Umm Melhaish, the highest,
35 is 475 feet high. View A on chart 374. An old pilgrim route leads from El Amaid to the River Nile, some 25 miles below Cairo.

LIGHT.—A light is exhibited, at 187 feet above high water, from a white iron tripod lighthouse, situated about half a mile north-westward of El Amaid and 150 yards inshore.

The sand from the desert makes the columns of the lighthouse
40 appear grey.

General charts 2606, 2158b, 449.

Chart 374, Ras Bulau to Alexandria. Var. 2° 40' W.

Anchorage.—There is good anchorage nearly $2\frac{1}{2}$ miles northward of the lighthouse, in 6 fathoms water, during off-shore winds. Good water can be obtained near the tower.

The coast from El Amaid trends east-north-eastward 36 miles, to Fort Ajemi, on the western point of Alexandria harbour, and is a sand beach, with low hills close inland, fronted for nearly the whole extent by numerous reefs and foul ground. 5

Medina reef, the westernmost of these shoals, the western end of which is situated 7 miles, 27° true, from El Amaid lighthouse, is $1\frac{1}{2}$ miles long east and west, and nearly a mile broad, with its southern part awash, and 2 to 3 fathoms on the remainder. The reef is 5 miles off-shore, and there are three patches with 3 fathoms water situated, respectively, one mile, 174° true, 2 miles, 115° true, and $1\frac{3}{4}$ miles, 61° true, from its shoalest part. 10

A patch, three-quarters of a mile long east-north-east and west-south-west, and nearly awash, lies about 7 miles east-north-eastward from the shoalest part of Medina reef. 15

Abusir hill, 22 miles eastward of El Amaid, and one mile inland, is the highest land in this locality, and there are the ruins of a castle on it. View C on chart 374. 20

Arab's tower (Arab-guelli), a short distance eastward of Abusir castle, is situated on a hill, 250 feet high. View C on chart 374.

Abusir reef extends about 6 miles east-north-eastward from about 7 miles westward of Arab's tower, and is narrow and rocky with average depths of 4 to 5 fathoms; a patch nearly awash lies $1\frac{1}{2}$ miles from its western end, and Victorieuse rock (*Lat. $31^\circ 2'$ N., Long. $29^\circ 31'$ E.*), with 9 feet water, is said to lie on the reef, with Arab's tower bearing 117° true, distant 4 miles, but this position is doubtful. 25

Reefs.—Several reefs lie within $1\frac{3}{4}$ miles off the coast between Arab's tower and Fort Ajemi, and some islets and rocks lie within 7 cables south-westward of the fort. 30

Directions.—**Arab's gulf.**—Between Ras et Dhabba and Ras el Gabisa do not shoal the water to less than 25 fathoms, observing that caution is necessary in the vicinity of Tanub reef, which is approached closely by deep water. From Ras el Gabisa do not shoal to less than 10 fathoms until near Medina reef, whence keep in not less than 20 fathoms to Alexandria. 35

At night, El Amaid light bearing 122° true leads north-eastward of the shoals off and south-eastward of Ras el Gabisa until about $2\frac{1}{2}$ miles from the light. El Amaid light, bearing 188° true, leads $1\frac{1}{2}$ miles westward of the 5-fathom extreme of Medina reef. 40

Caution.—There is said to be a strong indraught into Arab's gulf at times, so the lead should be constantly used. 45

General charts 2630, 2606, 2158b, 449.

Plan 243, Port of Alexandria. Var. 2° 30' W.

ALEXANDRIA HARBOUR is situated in the north-eastern portion of a bay which extends about $5\frac{1}{2}$ miles north-eastward from Fort Ajemi (El Ayana) (*Lat. 31° 9' N., Long. 29° 47' E.*).

- 5 **Márabút** (Agemi) islet, about 2 cables in length north-east and south-west, and covered with an old fort, and El Agrash, a smaller islet, surrounded by rocks, extend about 4 cables north-eastward of Fort Ajemi; thence a line of reefs trends, across the entrance to the bay, directly towards Eunostos point, a distance of $4\frac{1}{4}$ miles. There are
10 four channels through the reefs, named Márabút, Great Straight Boghaz, and Corvette passes, respectively, from the westward. Inside the reefs and off the south-eastern shore of the bay, there are depths of from 5 to 10 fathoms over a width of from $7\frac{1}{2}$ to $3\frac{1}{2}$ cables.

- The harbour is sheltered by the Outer and Quarantine breakwaters,
15 which extend from Eunostos point (locally Ras el Tin) and the Quarantine abattoir ground respectively, with an entrance, 430 yards wide, between them. It is divided into two portions by the Coal mole, the south-western part being named the Outer harbour, and the north-eastern part the Inner harbour. The area of the water surface of the
20 harbour is 1,863 acres.

The administrative limits of the port of Alexandria are within a line drawn from Fort Ajemi to about 2 cables outside Straight Boghaz pass, and thence to Eunostos point.

Plan 243, Port of Alexandria.

- 25 **Approach.**—The city is situated on and within a peninsula projecting about a mile north-north-westward from the coast, the outer end of which bifurcates into narrow arms stretching south-westward and north-eastward. On the south-western arm are barracks, Ras el Tin palace and harem, a military hospital, and near the extreme a high
30 lighthouse; on the extreme of the north-eastern arm is the square castle of Pharos (Fort Kaid Bai (Pharos)), with a tower supposed to be built on the site of the famous ancient Pharos.

- From the north-westward and northward Ras el Tin lighthouse on Eunostos point is usually first sighted; then the palace and harem
35 become visible; to the south-westward Kamaria signal station and abattoir, Mex lighthouses, and Fort Sheffakhana are conspicuous, but Márabút islet, with its fort, is low, and not generally seen from a distance of more than 8 miles. View on plan 243.

- Vessels are sometimes set to the eastward, and the Bourg fort,
40 Abukir, $10\frac{1}{2}$ miles north-eastward of Pharos castle, has been mistaken for Fort Márabút, to which it is similar in appearance, but Nelson island, $2\frac{1}{2}$ miles north-eastward of the Bourg, shows like a round-backed hill, and the land westward of the Bourg is moderately high,

General charts 374, 2630, 2606, 2158b, 449.

Plan 243, Port of Alexandria. Var. 2° 30' W.

and has some houses and trees on it, whereas westward of Fort Márabút, the land is low and sandy, with no houses or trees.

The soundings decrease gradually towards the land, which should not be approached to a depth less than 20 fathoms, except to enter one of the passes. 5

The northern angle of Fort Ada in line with Pharos tower, 71° true, leads from about 2 miles to 3 cables outside the reefs between Márabút islet and Eunostos point. Vessels waiting for a pilot should not go southward of this line until the beacons at the entrances to Great and Straight Boghaz passes are seen. 10

Plan 3119, Alexandria harbour.

LIGHTS.—Ras el Tin.—A light is exhibited, at 180 feet above high water, from a circular stone tower with a white lantern, near the extreme of Eunostos point. 15

Great pass.—Leading lights.—Rear.—Lights are exhibited from a circular tower, the lower part of which is white and the upper part black, surmounted by a ball and spike, situated about 4 cables inland south-south-eastward of the breakwater lighthouse. This lighthouse is known as Mex high lighthouse. View on plans 20 3119, 243.

Front.—Lights are exhibited from a circular tower, 64 feet high, and painted red and white in horizontal bands, situated 4 cables, 293° true, from the preceding light.

Great pass.—Entrance.—A light is exhibited, at 65 feet above high water, from a red concrete light-beacon, situated in 25 feet water on the southern side of the entrance to Great pass. 25

North shoal.—A light is exhibited, at 47 feet above high water, from a black iron framework tower, situated in 29 feet water, on the southern end of North shoal, on the northern side of the pass. 30

Outer breakwater.—A light is exhibited, at 53 feet above high water, from a white circular tower on a red masonry pedestal, situated on the south-west extreme of the Outer breakwater (*Lat. 31° 10' N., Long. 29° 51' E.*).

Timber quays breakwater.—A light is exhibited from the angle near the middle of the breakwater. 35

Coal mole, Gabari.—A light is exhibited from a grey hexagonal tower on a red masonry pedestal, on the northern extreme of the Coal mole.

Inner harbour.—Lights are exhibited from the coastguard pier on the north-western shore of the Inner harbour. 40

A light is exhibited from the end of the western mole, and a light from the end of the eastern mole, at the entrance to Arsenal basin.

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

BUOYS.—Great pass.—A red conical buoy marks the 6-foot shoal northward of Hydrographer shoal.

Great pass pivot light-buoy.—A black spherical light-buoy, exhibiting a *white fixed* light, is moored on the northern side of the inner end of Great pass, about half a mile east-south-eastward of North shoal light-beacon (*Lat. 31° 10' N., Long. 29° 49' E.*).

El Fara shoal.—A red conical buoy marks the north-eastern extreme of El Fara shoal, and lies 50 yards south-westward of Straight Boghaz pass.

Outer breakwater.—A black barrel buoy is moored about 25 yards off the southern end of the Outer breakwater, and marks the limit of shoal water.

Quarantine breakwater.—A red conical buoy, exhibiting a *green fixed* light, is moored about 50 yards north-westward of the north-western end of Quarantine breakwater.

Timber quays breakwater.—A black can buoy marks the position of the intended future southern extreme of the breakwater. A green conical buoy, exhibiting a *green fixed* light, marks the position of the intended north-eastern extreme of the breakwater.

Harbour bank.—A black can buoy is moored on the south-eastern side of Harbour bank, about $8\frac{3}{4}$ cables south-westward of the Coal mole lighthouse.

A black light-buoy, exhibiting a *red fixed* light, is moored on the south-eastern side of Harbour bank, about 3 cables south-westward of the Coal mole lighthouse.

A black can buoy, surmounted by a cage, is moored near the eastern end of Harbour bank, about 2 cables westward of the Coal mole lighthouse.

The last two buoys are liable to be shifted whilst dredging operations are being carried out. Vessels leave these buoys to the north-westward.

A small red can buoy is moored on the western end of a rocky reef about 160 yards southward of the inner end of the Outer breakwater.

Coal mole.—A black barrel-shaped buoy is moored about 25 yards southward of the western arm of the Coal mole, and marks the limit of shoal water.

Inner harbour.—A black can buoy is moored on the western side of the approach to the entrance of Arsenal basin.

Outer anchorage.—The anchorage outside the reefs is not recommended; the sea becomes heavy even with light winds from seaward, and then communication by boats is dangerous. Large vessels anchoring temporarily outside the reefs should avoid the vicinity of a

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

patch with 32 feet water about $8\frac{1}{2}$ cables westward of Ras el Tin lighthouse.

Plan 243, Port of Alexandria.

Márabút pass, 3 cables wide, situated between Márabút fort and Great pass, is used only by coasting craft. A red iron pole beacon stands on a rock on the northern part of Márabút reef, $4\frac{1}{2}$ cables north-eastward from Márabút fort; the sea generally breaks on the rock. A stone beacon in the form of a dome stands on shore, about half a mile southward of Marsa el Kanat, and about a cable north-north-westward of it is the white horn mark, a long white wall with knobs at each end.

West beacon, a pole surmounted by a red triangle, about 4 cables westward of the stone beacon, is an old mark.

Directions.—Approach and enter the pass with the stone dome beacon (*Lat. 31° 8' N., Long. 29° 49' E.*), one-fourth the distance from the eastern towards the western knob of the white horn mark, 152° true, which leads through the pass in not less than 23 feet water. When the lighthouse on the southern end of the breakwater bears 54° true, steer to pass about half a cable southward of it, and thence as directed on page 66.

Plan 3119, Alexandria harbour.

GREAT PASS, about $1\frac{1}{2}$ miles north-eastward of Márabút fort, is the principal pass leading through the reefs, and the only one available at night; it is 200 yards wide, with a least depth of 35 feet, sandstone bottom.

Beacons.—The axis of the pass is marked by the alignment of Great pass leading lighthouses, or their lights at night, 113° true (page 63).

The south-western limit of the pass is marked by the alignment of the South front beacon, a short mast surmounted by a lattice-work triangle, situated about three-quarters of a cable west-south-westward of Great pass front leading lighthouse, with the South back beacon, a tall mast carrying a lattice-work oblong, situated about three-quarters of a cable south-south-eastward of Great pass rear leading lighthouse.

The north-eastern limit of the pass is marked by the alignment of the North front beacon, a short mast surmounted by a lattice-work triangle, situated about half a cable north-eastward of Great pass front leading lighthouse, with the North back beacon, a tall mast carrying a lattice-work oval, situated three-quarters of a cable north-north-westward of Great pass rear leading lighthouse. Views on plans 3119, 243.

Both pairs of beacons in line bear 113° true.

Great pass entrance light-beacon and North shoal light-beacon, see page 63.

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

- Shoals.**—A shoal, with 18 feet water, is situated on the northern edge of Great pass, with Great pass entrance light-beacon bearing 253° true, distant nearly 2 cables. A shoal, with 6 feet water, lies at the northern extreme of Hydrographer shoal, and near the southern edge of Great pass, with North shoal light-beacon bearing 80° true, distant about 2½ cables.

Caution.—Less water than is shown on the plans may exist over the shoals on either side of Great pass.

- Directions.**—Approach and enter Great pass with the leading lighthouses or lights in line, 113° true; keep the mark on as exactly as possible in the pass, the limits of which are shown by the beacons above mentioned in daylight. Great pass light-beacon and the red buoy northward of Hydrographer shoal are left to the southward, and North shoal red light-beacon to the northward. On arriving southward of the pivot light-buoy steer towards the entrance to the harbour.

- Vessels about to enter, arriving at the entrance to the Outer harbour, should blow the steam whistle to warn vessels inside and about to leave, which should wait until the entering vessel is within the Coal mole.

In entering, pass southward of the black buoy off the end of the Outer breakwater and northward of the red light-buoy off the end of Quarantine breakwater; the three black buoys, one of which is a light-buoy, marking Harbour bank, are left on the port hand.

- Vessels should not enter the Inner harbour before a berth has been assigned to them.

- Straight Boghaz pass**, nearly 2½ miles north-eastward of Márabút islet, is 100 yards wide, with a least depth of 28 feet; it is not available at night, and is impracticable when the sea is heavy. It is necessary to be cautious in entering in a vessel of deep draught, when there is a swell, for sand may be deposited in the pass, which will reduce the depth until it is removed. The depth is affected by the prevailing wind to the extent of 3 feet; with smooth water in summer the depth is more than the normal, but in winter, when the sea is generally somewhat heavy, the depth is less.

- Beacons.**—The axis of the pass is marked by the alignment of Mex high lighthouse (Great pass rear lighthouse, page 63) with Mex low lighthouse, a black circular stone tower, on a rock 170 yards off-shore, the light from which is not now exhibited, 134° true. View on plans 3119, 243.

The south-western limit of the pass is marked by the alignment of Boghaz western front beacon, a mast carrying a semicircle arc downwards, situated on the shore south-south-eastward of Mex front lighthouse, views on plans 3119, 243, with South back beacon (page 65).

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

The north-eastern limit of the pass is marked by the alignment of Boghaz eastern front beacon, a mast carrying a semicircle arc downwards, situated on the shore south-eastward of Mex front lighthouse, views on plans 3119, 243, with North back beacon (page 65). 5

NOTE.—Mex high lighthouse is the rear leading mark for both Great and Straight Boghaz passes; and South and North back beacons are also used as limiting beacons for both passes.

Boghaz entrance beacon, a black pole surmounted by two cylinders, 50 feet high, is situated on a shoal, with 17 feet water, near the entrance to the pass and half a cable north-eastward of the fairway. 10

El Kot beacon, a black pole surmounted by a ball, 33 feet high, is situated on a shoal with 9 feet water, about $3\frac{1}{2}$ cables within the entrance beacon, and nearly a cable north-eastward of the pass.

El Fara beacon, a pole surmounted by a triangle, 36 feet high, is situated on a shoal with 4 feet water, $3\frac{1}{2}$ cables south-westward from El Kot beacon. Views on plans 3119, 243. 15

Directions.—Enter the pass (*Lat.* $31^{\circ}10'N.$, *Long.* $29^{\circ}49'E.$) with Mex high lighthouse in line with Mex low (old) lighthouse, 134° true. The marks should be brought on while well seaward of the entrance beacon, which is on the north-eastern side of the pass. El Kot beacon is also on the north-eastern, and El Fara beacon and buoy on the south-western, side of the pass. The side limits of the pass are shown by the beacons above mentioned. When the Breakwater lighthouse bears about 90° true turn eastward and into the harbour, as directed on page 66. 20 25

Great and Straight Boghaz passes.—Regulations.

—Only one steam vessel is permitted to use the same pass at a time.

Steam vessels leaving the port are to give way to those arriving.

Vessels not intending to enter the harbour should not approach the passes except in unavoidable circumstances. 30

Before entering a pass from seaward, steam vessels must, between sunrise and sunset, hoist International code signal R.S.M. (wait), and sound their whistles. After sunset a blue light should be burnt by all steam vessels approaching a pass whether bound inwards or outwards. 35

If an outgoing steam vessel is in a pass at the time an incoming one arrives at the sea end, the outgoing steam vessel will hoist Y.S.M. by day, or burn a blue light at night, and sound her whistle; the arriving steam vessel should then wait outside until the pass is clear. 40

By day.—Outgoing steam vessels must not approach Great pass pivot buoy (if using Great pass) or El Kot (if using Straight Boghaz pass) within half a mile, in the event of a steam vessel entering the pass they require to use from seaward, until the arriving vessel is inside

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

and clear of the pass. Vessels must not lie with the leading marks in line, so as to obscure them from a vessel entering.

- Should both passes be signalled as in use, the outgoing steam vessel
 5 must stop off Kamaria signal-station until the signal-station indicates that all is clear.

When two vessels are proceeding out of the same pass, the second vessel must not bring the leading marks in line, so as to obscure them from the leading vessel, until the first is outside and clear.

- 10 At night.—Only Great pass is in use at night, and an outgoing steam vessel must stop off Kamaria signal station (*Lat. 31° 10' N., Long. 29° 52' E.*) when a signal shows that the pass is being used by an incoming steam vessel until the signal station indicates that the pass is clear.

- 15 Sailing vessels, crossing the paths of steam vessels in the passes, do so at their own risk.

Sailing vessels must not anchor in the entrance between the Outer and Quarantine breakwaters.

- 20 **Pass signals.**—The following signals are made from Kamaria signal station, a white circular tower and a flagstaff on the small Kamaria hill, situated $3\frac{1}{2}$ cables north-eastward of the Quarantine port, Alexandria Outer harbour.

By day.	At night.	Signification.
One ball at south-west yardarm. One diamond at north-east yardarm.	Two <i>white</i> lights, horizontal. No signal made - - -	Great pass clear. Boghaz pass clear.
Three balls at south-west yardarm.	Two <i>red</i> lights, horizontal -	Vessel in Great pass.
Two diamonds at north-east yardarm.	No signal made - - -	Vessel in Boghaz pass.

- 25 **Pilots.**—In moderate weather, pilots are always outside the reefs, but in strong winds, with much sea on, they remain inside the harbour entrance.

- In heavy weather, when the pilot boats cannot go out, a black flag, with two yellow crosses, is hoisted at the signal station and also at Ras el Tin lighthouse. If pilots are unable, on account of the sea, to board vessels, International code flag V is hoisted on board the pilot tug, and
 30 this signal is independent of any signals made from Fort Napoleon (Kom el Nadoura) signal station; commanding officers must then pilot their vessels through the pass, or remain outside until the weather moderates. The pilot's services commence, or end, abreast the Outer breakwater lighthouse.

General charts 243, 374, 2630, 2606, 2158b, 449.

Plan 3119, Alexandria harbour. Var. 2° 30' W.

When a vessel of war has obtained permission to enter the Inner harbour, a representative of the port authority will indicate the buoy to be picked up.

Pilotage dues are compulsory for merchant vessels whether a pilot is employed or not. 5

The dues to be paid on entering and leaving the port are £E.1. 600 milliemes for a steam vessel of 26 feet and less draught, with an additional 800 milliemes if over that draught. The dues are increased 50 per cent. if an in-going vessel passes either of the outer beacons, or an out-going vessel passes the end of the Outer breakwater, after sunset. 10

Vessels of war, if they employ a pilot, pay on entering and leaving the port, £E.1, if the draught is under 15 feet; £E.2, if the draught is between 15 and 20 feet; £E.3, if the draught is over 20 feet. 15

Vessels leaving which require a pilot should apply to the Director-General of Ports and Lighthouses, and hoist the pilot flag at the mizen.

Harbour pilots and mooring boats will be supplied on application to the Harbour master at a charge of about 8s. for a harbour pilot and mooring boat, and 8s. for each additional mooring boat. 20

Dredging operations.—While dredging operations are in progress in a pass:—

The dredger hoists a square red flag while working, and when this flag is dipped, it indicates that the pass is clear. 25

Out-going vessels, during dredging operations, must not proceed from the breakwater (*Lat. 31° 10' N., Long. 29° 51' E.*), where they should sound their whistles, to the entrance of the pass until the dredger has signalled that the pass is clear.

In-going vessels must, on nearing the pass, sound their whistles, and remain outside the pass until the dredger has signalled that the pass is clear. 30

Vessels must pass the dredger at slow speed. A black ball at the yardarm denotes the side on which the vessel is to pass.

The dredger, when at work at night, carries three electric lights, one at the bow, one at the stern, and one on the bridge, and, when not working at night, two *white* lights at the masthead. When the dredger is working at night leaving the pass free, she will carry a *white* light at the masthead, and two *white* lights above the bulwarks on the side a vessel is to pass. 40

Corvette pass, 9 cables north-eastward of Straight Boghaz pass, is about 100 yards wide between the 3-fathom lines of the reefs, and has a least depth of 21 feet; it is available for small vessels by day only.

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- Beacons.**—El Hut rocks, on the western side of the pass, are marked by a pole beacon, 21 feet high, on their southern part. Ikvan rock, on the eastern side, is marked by a red pole beacon, surmounted by a ball, 23 feet high, on its southern extreme.

- Leading beacons.**—Two black pole beacons, 76 feet high, stand on the shore southward of Mex harbour; the rear beacon is surmounted by two balls, placed vertically, 6 feet apart; the front beacon is surmounted by two diamonds, placed vertically, 9 feet apart, and is distant 3 cables from the rear beacon. The beacons in line, 182° true, lead through Corvette pass in not less than 21 feet water; from seaward they appear in a clear space between some houses to the eastward and an old mill to the westward.

Near the front beacon is a conspicuous mosque.

- This pass should not be taken by a stranger.

Hole in the wall, a boat passage about 33 feet wide, lies between Eunostos point and the north-eastern end of the Outer breakwater, but it should not be used, except by those possessing local knowledge of the channel, and it is impracticable in heavy weather.

- The following directions are given: Approach with Sidi Gabari mosque in line with the middle of the flat part of the breakwater (500 yards from the north-eastern end), 130° true, until a beacon, 330 yards from the north-eastern end of the breakwater, is in line with Fort Napoleon flagstaff bearing 85° true, when steer for the pass; round the end of the breakwater closely, and steer to leave a small red can buoy about 160 yards to the southward of it, and which marks the western end of a rocky reef, on the port hand.

- When leaving, after passing the end of the breakwater (*Lat. 31° 12' N., Long. 29° 52' E.*), keep close to its outer side, with the north-eastern end of the breakwater in line with the south end of the Military hospital buildings, 65° true, until abreast the flat part of the breakwater, then keep the beacon, 330 yards from the north-eastern end of the breakwater, in line with Fort Napoleon flagstaff, 85° true, until the breakwater lighthouse opens westward of the line of the breakwater, about 186° true.

When the water is smooth, the beacon, 330 yards from the north-eastern end of the breakwater, in line with Sidi Gabari mosque, leads between the shoal off Eunostos point and the 9-foot patch to the south-westward.

- THE OUTER HARBOUR**, with an area of 1,398 acres, extends about $1\frac{3}{4}$ miles north-eastward from its entrance, which is situated between the Outer and Quarantine breakwaters, and the space south-eastward of Harbour bank, about 6 cables broad, has depths of from 65 to 31 feet, mud and sand bottom. It includes the Coal basin,

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Plan 3119, Alexandria harbour. Var. 2° 30' W.

petroleum quays, quays for vessels of small draught, and small shelter ports along the south-eastern shore for discharge of bricks, lime, cement, and inflammable materials; also timber quays, and the Quarantine port, a special port for cattle. 5

The Outer breakwater, built of blocks of concrete, with rubble masonry inside, was commenced in 1871 and finished in 1910. Its north-eastern end is separated from an islet near Eunostos point by the Hole in the wall, a boat passage, 33 feet wide (page 70). It extends 6 cables, 230° true, and then 13 cables, 189° true. The top 10 of the breakwater is about 10 feet above the lowest level of the sea. About 500 yards from the north-eastern end several concrete blocks are laid horizontally and show well owing to the greater number of the blocks being placed irregularly.

Beacon.—An iron pole, surmounted by a ball, stands on the 15 breakwater, 330 yards from its north-eastern end.

Harbour bank, with several patches of from 7 to 10 feet water, and on the north-western portion of which the breakwater is built, occupies the north-western portion of the Outer harbour.

Dredging.—A part of Harbour bank has been dredged to a 20 depth of 33 feet, but it has not been examined since, nor is it at present open to navigation; less water has been reported. The south-eastern part of the bank is to be dredged to a depth of 33 feet. A depth of 31 feet only can be relied on north-westward of the Coal mole. See plan 3119. 25

Quarantine breakwater extends $2\frac{1}{4}$ cables, 328° true, from the Quarantine mole, which is about a cable in length, and forms the Quarantine port, between it and the shore to the north-eastward; it is situated east-south-eastward of the southern end of the Outer breakwater. A grey tower, 41 feet high, stands on the northern end of 30 Quarantine breakwater.

Buheireh beacon, a pole surmounted by a black ball, near the inner end of the mole, is an old mark.

Timber quays breakwater extends from about 2 cables eastward of the northern end of Quarantine breakwater, 21° true, 35 $1\frac{1}{4}$ cables, and then 49° true, $2\frac{2}{10}$ cables; it is not yet completed.

Coal mole.—The coal mole (*Lat. 31° 11' N., Long. 29° 52' E.*), at the north-eastern end of the Outer harbour, extends about half a mile north-westward from the Gabari (Gabbari) coast; from its outer end an arm turns south-westward and south-south-eastward about 4 cables, 40 forming the Coal basin, which has depths of from 38 to 48 feet.

Inner breakwater.—A breakwater extends 140 yards southward from a point situated about a cable southward of Ras el Tin lighthouse, and from 50 yards eastward of its southern end, a curved

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detached breakwater extends 2 cables south-eastward. There are two pole beacons, each surmounted by a ball, at the south-western angle of the detached breakwater; the outer one is black and the inner one
5 white; and at the eastern end is a hut with a flagstaff.

Quays and berths.—Coal basin quays (*Lat. 31° 11' N., Long. 29° 52' E.*).—There are seven berths in the Coal basin (55 to 61), numbered from the end of the curved arm. Nos. 55 and 56, on the south-west side of the basin, have a total length of 860 feet; Nos.
10 57, 58, 59, in the curve, have lengths of 430, 440, and 425 feet, respectively; and Nos. 60 and 61, on the north-east side of the basin, have a total length of 725 feet. All the seven berths have a depth of 28 feet alongside; there are no pontoons. The quay surface has a minimum width of 181 feet.

15 Petroleum quay lies southward of Coal basin, and has a depth of 9 feet alongside. There are three piers for the discharge of petroleum and tanks for its reception; *Jetée Mantcheff*, the largest of the piers, is of stone, the others of iron; the berths between Coal mole and the south-west end of Petroleum quay are numbered 64 to 69.

20 Next the Petroleum quay is a space for repairing and building lighters and small craft, beyond which is *Gabari dry dock*, the entrance to which is protected on the west side by a breakwater extending about 130 yards northward.

South-westward of the dock is a quarantine enclosure for horses
25 under observation; a jetty at the south-west end forms berth 70, a shelter for loading lighters. Beyond this a stone embankment extends about 2½ cables to the Timber quays.

The Timber quays are three moles about 394 feet long and 262 feet broad, with spaces 180 feet wide between them and a depth
30 of 27 feet alongside; there are 11 berths (71 to 81).

Kamaria port, on the south-west side of the Timber quays, has two timber slips, Nos. 83, 84, and is used for landing wood from the sailing vessels in the harbour; berth 82, on the east side, has from 8 to 20 feet alongside; at 83, 84 the depth is about 16 feet.

35 The Nitrate quay and sheds, about 1½ cables south-westward of Kamaria port, are used for landing and storing nitrates.

Quarantine port, berth 85, with a depth of 24 feet alongside a jetty 656 feet long and 65 feet broad, fitted with a railway, is situated at the southern end of the Outer harbour. Opposite the port are the
40 quarantine abattoir and enclosures for cattle.

INNER HARBOUR.—The Inner harbour extends about three-quarters of a mile north-eastward from the Coal mole and a line from it to the shore through the Inner breakwaters; it has an area of 465 acres, with depths of from about 25 to 39 feet, but a bank with

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Plan 3119, Alexandria harbour. Var. 2° 30' W.

from about 6 to 18 feet water extends $3\frac{1}{2}$ cables from the northern shore.

The harbour includes the Arsenal and Careening basins (Lat. $31^{\circ} 12' N.$, Long. $29^{\circ} 53' E.$), the area of which is 46 acres, situated in its north-eastern part. The entrance to these basins is 87 yards wide, and has been dredged to a depth of 27 feet; the central part of the Arsenal basin has a depth of 27 feet; in the remainder the depths are generally from 9 to 25 feet, with less water in places. On the northern quay of the basin are the magazines and workshops of the Coastguard Administration, the establishments of the Ports and Lighthouses Administration, the repair workshops, three slipways for tugs, lighters, &c.; also the workshops of the Khedivial Mail Steamship Company. Opposite the central office of the Port Administration is the Government landing place of Alexandria harbour, reserved exclusively for the use of Government craft. A jetty, 109 yards long, and 10 yards broad, with a depth of 16 feet alongside, at right angles to the quay, is reserved for berthing the tugs and other floating plant of the Port Administration.

The Careening basin, eastward of the Arsenal basin, has depths of from 9 to 25 feet, and can only be used by small vessels.

The speed of launches in Arsenal and Careening basins must not exceed 4 knots, in order to prevent damage to vessels lying there.

Mooring buoys.—The Inner harbour is occupied by numerous mooring buoys, laid down in sets, where vessels moor head and stern, head north-westward; the buoys are numbered.

No. 1 buoy for the Khedivial yacht lies 2 cables north-westward from Coal mole lighthouse, and buoys Nos. 3 and 4, for vessels of war, north-eastward of it, are 620 feet apart, and in 29 feet water; large vessels secure between them.

The moorings are rather light for large vessels, and must not be depended on entirely; in winter let go the port anchor about 30 fathoms westward of the headmost buoy, veer to the buoy, and shackle the starboard cable to it.

Harbour works. — Nouveau quai, in the north-eastern part of the harbour, is under construction.

Quai du Mahmudiyeh is being extended north-westward; the extension is marked by green buoys, which are moved as the work progresses.

Quays and berths.—The quays of the Khedivial Mail Steamship Company, in the south-western part of the Arsenal basin, have three berths, Nos. 1, 2, and 3.

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In the Careening basin, No. 4 berth, at the north-western end, is 295 feet long, with a goods shed on the quay; No. 5, the Quai de l'ancienne Douane, on the eastern side, is 1,181 feet long, and used principally for discharging fruit and wine; here is the usual landing place, inside which is the office of the port police; No. 6, the south quay, is 295 feet long; it is used by passengers landing in boats, and there is a disinfecting station, quarantine office, and passport office; No. 7, on the south-western side, is 443 feet long, and is used for discharging lighters with merchandise from vessels moored outside; the Quai de l'Arsenal has a projection north-eastward and another north-westward; the north-eastern has three berths, Nos. 8, 9, and 10, 285, 222, and 426 feet long, with depths of 17, 19, and 24 feet along-side, respectively; the north-western projection has also three berths, Nos. 11, 12, and 13, with lengths of 426, 327, and 469 feet, and depths of 25, 28, and 28 feet alongside, respectively.

Nouveau quai (*Lat. 31° 12' N., Long. 29° 53' E.*) extends south-westward from Quai de l'Arsenal into the Inner harbour, and No. 14 berth, on its north-western side, is 574 feet long; No. 15 berth, on its south-western side, is under construction; the south-eastern side of the quay has two berths, Nos. 20 and 21, with a total length of 787 feet, and a depth of 28 feet alongside outside floating pontoon. No. 22, the next berth to the north-eastward, is 492 feet long, with 16½ feet water alongside; vessels lie stern on to the quay.

Quai Centrale is divided into two parts by Rue Bab el Karasta, which gives free access to and from the town. The northern part has three berths, Nos. 23, 24, and 25, with a total length of 1,116 feet, and a depth alongside of 26 feet outside the floating pontoons; No. 23 is occupied by the Italian Navigation Company, Nos. 24 and 25 by the Austrian Lloyd Company.

The Custom-house is abreast No. 25 quay.

The southern part of Quai Centrale has three berths, with a total length of 1,446 feet, and depths alongside of from 24½ to 26 feet; No. 26 berth is occupied by the Cie. des Messageries Maritimes, No. 27 by the Ellerman line, and No. 28 by the Leyland Steamship Company. Behind the line of sheds on Quai Centrale is a railway.

Quai Moss has three berths; No. 29, on the north side, is 328 feet long, with 23 feet alongside; No. 30, at the end, is 138 feet long, with 23 feet alongside, but not available for steamers; and No. 31, on the south side, 344 feet long, with 24 feet alongside. Quai Moss has no floating pontoons.

No. 32 berth, between Quai Moss and the entrance to the Mahmudiyeh canal, is 696 feet long, but can only be used by small craft; two wooden jetties, each 100 feet long, extend at right angles to the quay.

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Quai du Mahmudiyeh, on the west side of the canal mouth, extends northward, and is being extended 500 yards north-westward. No. 33 berth, on the eastern side, cannot be used by steamers, but is reserved for the Nile boats using the canal. Nos. 34 to 41 berths, around the extension of the quay now in progress, will have a depth of 33 feet alongside. Nos. 42 and 43 berths, on the western side of the inner part of the mole, have a total length of 925 feet, and depths of from 23 to 26 feet alongside. Railway lines are laid on the quay.

Old Coal quay (*Lat. 31° 11' N., Long. 29° 53' E.*) has two berths, No. 44 extending 492 feet south-westward from the inner end of the Quai du Mahmudiyeh, with a depth of 23 feet alongside, and No. 45, extending thence north-westward 577 feet, with a depth of 26 feet outside floating pontoons.

Old Coal mole, projecting northward from the inner part of the Coal mole, has two berths, Nos. 46 and 47, on the eastern side, with a total length of 921 feet, used for general commerce; No. 48 berth, across the end, is 204 feet long; and No. 49, on the west side, has a length of 643 feet. All four berths have a depth of 26 feet alongside.

Coal mole has five berths, Nos. 50 to 54, alongside the Coal quay, north-westward of Old Coal mole, with a total length of 2,100 feet; No. 50 has a depth of 24 feet, No. 51 of 25 feet, No. 52 of 27 feet, No. 53 of 28 feet, and No. 54 of 30 feet, outside floating pontoons. A railway runs on to the mole.

Mahmudiyeh canal leads from the Inner harbour, north-eastward of the inner end of the Quai du Mahmudiyeh, to Atfeh, on the Rosetta branch of the Nile, and about 15 miles above the town of Rosetta. It was constructed in 1819-20, is about 50 miles long and tortuous, with a breadth varying from 27 to 44 yards; the greatest depth of water is $8\frac{3}{4}$ feet, and it is less during the period preceding the rise of the Nile. The draught of the Nile boats, of which the maximum tonnage is 300, is not more than $5\frac{1}{2}$ feet; navigation is slow and difficult. The canal is much used for transporting heavy and bulky merchandise. During the year 1910, 4,696 Nile boats passed into the canal from the port. The canal has two locks.

TIDES.—It is high water, full and change, in Alexandria harbour, at about Xh. 5m.; springs rise one foot, neaps 3 inches. Strong westerly winds cause the water to rise $1\frac{1}{2}$ feet above the level of ordinary high water, and nearly 3 feet above the low level caused by easterly gales.

From the records of the self-registering gauge at Mahmudiyeh canal, it appears that there are two regular tides every 24 hours, with a range of about 9 inches at springs and 4 to 5 inches at neaps. There is a slight diurnal inequality more marked at neaps than at springs.

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The alteration in the mean level, probably caused by wind, amounts to about 9 inches. The mean level of the sea in August, September, and October is 7 inches higher than in February, March, and April.

- 5 There is an automatic tide gauge at the north-western end of the Coal mole.

Harbour regulations.—No vessel is to proceed at a rate greater than 10 knots when in the Outer harbour, nor greater than 5 knots, when rounding the Coal mole and in the Inner harbour.

- 10 All in-going vessels are to hoist the quarantine flag and their number before rounding the Outer breakwater, and are to keep the former flying until pratique is obtained, and the latter until they arrive in the Inner harbour, or for a reasonable time after anchoring in the Outer harbour.

- 15 All vessels arriving from an uninfected port, and having no sickness on board, may proceed into the Inner harbour, where they will be boarded by the Quarantine officer, but they are not to go alongside the quays until pratique has been obtained.

- 20 All vessels arriving from an infected port are to anchor in the quarantine ground in the Outer harbour, north-north-eastward of the Timber quays (*Lat. 31° 10' N., Long. 29° 52' E.*), where the medical visit will be made.

- Should the Quarantine office receive information that a port has become contaminated with plague or cholera, the pilots will be advised, and every week the Pilot department is supplied by the Quarantine office with a list of ports or harbours which are infected with those diseases. The production of bills of health is obligatory at all times by vessels arriving in an Egyptian port, and only those delivered within 48 hours previous to departure will be considered valid.

- 30 Declaration of arrival will be obtained from all vessels on arrival. Vessels entering the harbour between 8h. a.m. and 5h. p.m. will be boarded on arrival, and vessels entering after 5h. p.m. will be boarded the next morning, but no vessel will be boarded before she has received pratique.

- 35 Any vessel arriving with fire on board will not be permitted to enter the Inner harbour, but will be taken to such anchorage as the Harbour master may direct.

- When a vessel has powder or other explosives on board, a red flag by day and a red light at night are to be hoisted before entering the Outer harbour. Vessels with explosives or petroleum on board are to anchor in the Outer harbour, and are not allowed in the Inner harbour.

Vessels alongside the quays are not to lay out hawsers to the buoys, except in emergency or in a case to be approved of by the Director-

General charts 243, 374, 2630, 2606, 2158b, 449.

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General or Harbour master, and all hawsers laid out are to be cast off from the buoys as soon as possible after the work for which they were required is finished. Vessels leaving are not to lay their hawsers out until one hour before departure.

5

Hawsers are not to be used to keep vessels off the quays except in unusually heavy weather; anchors are to be used for this purpose.

When necessary, captains of vessels must double their moorings, and take such precautions as are prescribed by the Harbour master, or his assistants. Vessels anchoring in the harbour must mark the anchor with an anchor buoy.

10

Shipping companies and owners, conjointly with the captains of the vessels, will be held responsible for the observance of the above regulations, and for any collision or damages which may result from the infringement of them.

15

Application for a berth alongside a quay, or for permission to secure to a buoy, must be made to the Director-General of Ports and Lighthouses on P.L. form No. 180 (supplied gratis to shipping agents and captains on request). If a particular berth is required, the vessel first entering the harbour will have the prior claim, and should that vessel be placed in quarantine, the next in order of entering will take precedence of others. No vessel will be forced to take any particular berth if it is not desired by the agent or captain.

20

As regards moving vessels from place to place in the harbour, either at the quays or at the buoys, or taking them to a new anchorage, the requirements of the Port Administration will be notified direct to the commanding officer of the ship for the time being, who is to carry out the orders according to the directions given.

25

Police.—The Port police office is situated at Ras el Tin, westward of the palace, and there is a sub-office at the Marina landing stage. The Port police launches fly a red pennant with the word "Police" in white letters.

30

Vessels requiring assistance from the Port police should hoist International code signal Y.N.

It is strictly forbidden to throw ashes, manure, sweepings, &c., into the harbour. When the services of a lighter are required for the removal of ashes or rubbish, a basket should be hoisted at the mast-head, or a request made by letter addressed to the Officer Commanding Port police, and, if possible, delivered the day previous to that on which the lighter is required.

40

A vessel requiring the Port police fire brigade, who supply the fire-boat, uses the following signals:—

By day.—The International Board of Trade distress signal N.H., or continuous sounding with any fog signal apparatus.

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At night.—A gun, or explosive signal, fired at intervals of about one minute.

The city.—Alexandria is the most important city in the eastern part of the Mediterranean. The ancient city was founded in the year 332 B.C. by Alexander the Great, who called it after his own name; it stood a little southward of the present town, and its magnificence was so remarkable that the Romans ranked it next to their own capital; Pompey's (Diocletian's) pillar is still left, and there are several other remains in a ruinous state. In 1517, when it was taken by the Turks, its former splendour vanished, the buildings were reduced to ruins, and in 1778 its population was about 6,000. Under Mehemet Ali (1805-1849) the city recovered, and a large part of the commerce of Egypt now passes through it.

The population of Alexandria in 1907 was 332,246, of which 80,000 were foreigners.

Alexandria was very strongly fortified before its bombardment by the British fleet in 1882; in addition to several forts inside the city walls, a chain of forts, redoubts, and round towers crowns the heights around, and extends westward several miles along the shore to the great fortification which commences at the Tabia-el-Mex or Old canal fort, and stretches across the narrow isthmus between Lake Mareotis and the sea, the level of which, in August, is 13 feet higher than that of the lake, when the latter dries one or 2 miles from its banks. The large Fort Ajemi is 3 miles farther eastward on the western point of the harbour, and close north-eastward of it is Márabút islet, which is a fort.

A British Consul-General and a Vice-Consul are stationed at Alexandria.

Signal station.—The signal station at Fort Napoleon (Kom el Nadoura) (*Lat. 31° 12' N., Long. 29° 53' E.*) is a group of dwellings on the top of a hill, about 3 cables eastward of the middle of the eastern shore of the Inner harbour, and 140 feet high, with a flag-staff and time ball; vessels are signalled when sighted. Communication can be made by the International code.

Time signals.—The signals are made by a black ball, 115 feet above the sea and 15 feet above the ground at Fort Napoleon signal station:—

(1) The ball is dropped, electrically from Cairo, at noon Egyptian standard time, or 22h. 00m. 00s. Greenwich mean time.

(2) The ball is dropped, electrically from Cairo, at 1h. 0m. 0s. p.m. Alexandria mean time, or 23h. 0m. 27s. Greenwich mean time.

Should the first signal fail, International code flag D will be hoisted, and the ball kept up for the second signal.

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Should the second signal fail, it will be repeated at 1h. 5m. 0s. Alexandria mean time, or 23h. 5m. 27s. Greenwich mean time.

A gun is fired at the instant of the signal at noon standard time.

Climate.—The climate of Alexandria is warm, but tempered by the prevailing north-west and northerly winds between May and October. The remainder of the year is usually fine.

Winds.—In summer the wind is generally fresh from the north-westward during the day, causing the sea to break on the reefs; it moderates after 3h. p.m., and a land breeze follows at night.

Southerly winds, called khamsin, are laden with clouds of fine sand from the desert, the air becomes reddish, and objects at any distance are obscured.

In winter, west and north-west winds prevail, and in autumn and spring, variable moderate winds, but usually from north and north-east.

Gales generally last from three to four days, the wind being from the south-west on the first day, and veering to the north-west or north on the second day, and remaining from that direction. The heaviest gales generally occur in January and February.

Storm signals are exhibited from Ras el Tin lighthouse about 3 p.m. daily, and indicate that a gale may be approaching as shown below; their exhibition cannot be guaranteed on Fridays and Government holidays.

Signal.	Signification.
Cone, point upward - - -	Gale commencing from between west and north.
Cone, point downward - - -	Gale commencing from between south and west.
Two cones, one above the other, points upward.	Gale commencing from between north and east.
Two cones, one above the other, points downward.	Gale commencing from between east and south.
Two cones, bases together - -	Very heavy gale.

Trade.—The exports in 1913 were rice, sugar, cotton, cotton seed, cigarettes, eggs, ivory, ostrich feathers, barley, oil cake, beans, onions, wool, hides, &c., of the value of £E.30,894,797; the imports were cotton fabrics, coal, timber, iron and iron-ware, hosiery and clothing, flour, meal, petroleum, rice, fruits, machinery, &c., of the value of £E.23,759,358.

At Alexandria (*Lat. 31° 12' N., Long. 29° 52' S.*), cotton pressing, seed crushing for oil, beer brewing, and tanning are carried on;

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cigarettes, common soap, artificial stone, and sandbricks are made; salt is found near the suburb of Mex.

Shipping.—In 1913, 1,932 steam vessels, of 3,718,660 aggregate
5 tons, entered the port.

Supplies.—The Alexandria Waterworks Company has installed a water service on the quays, and supplies shipping with filtered fresh water, which is good for drinking and also for boilers. It is put on
10 board vessels alongside the quays by hoses, and on board those in the harbour by water-tank boats. Bullocks and sheep can be procured at moderate prices, and fowls, vegetables, fruit, &c., are plentiful.

Coal.—About 60,000 tons of Welsh and North country coal are usually in stock, and several firms keep a stock of patent fuel. Coaling is performed alongside the coal quays at rates up to 400 tons an
15 hour. The Railway Administration possesses six transporters for the rapid discharge of coal; the buckets contain $1\frac{1}{4}$ tons, and each makes about 28 passages an hour over a distance of about 50 yards.

Tugs.—Three tugs of from 300 to 600 horse power belong to the Port Administration, and two tugs of 300 and 350 horse power to the
20 Pilotage Corporation.

Docks.—*See Appendix I.*

Repairs.—Large repairs to machinery can be executed by the Khedivial Mail Steamship Company at the arsenal, and by Autofage & Co.; small repairs by the Alexandria works and
25 the Lighthouse works. Vessels of 700 tons can be built. Ten tons of iron can be melted and run at one time; cylinders of 48 inches diameter can be cast and bored up to 5 tons of metal; boilers of 10 feet diameter can be made, and those of any size repaired; shafts of 7 inches diameter and 40 feet in length can be
30 forged and turned; pipes of any size can be brazed, masts made, and boats built; propellers up to 10 tons can be cast.

The Khedivial S.S. and Graving Dock Company have two wharves, 320 and 328 feet long, with depths of $17\frac{1}{2}$ and 20 feet alongside, respectively. The wharf crane of the company can lift 20 tons, the
35 floating crane 18 tons. The Port Administration have several cranes, the largest capable of lifting 50 tons. There are four floating sheers belonging to the port plant, with a capacity of 40, 20, 10, and 6 tons, respectively.

Sailors' home.—There is a sailors' home, with good accommodation, situated on the quay near the entrance to Mahmudiyeh canal
40 (*Lat. 31° 12' N., Long. 29° 53' E.*).

Diseases.—The prevailing diseases are ophthalmia and cholera; the natives suffer greatly from the former, but Europeans are not so subject to it. Cholera, when it occurs, rages with great violence; dur-

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ing the epidemic from June to August, 1865, the death-rate reached $22\frac{1}{4}$ per 1,000 inhabitants. The plague occasionally makes its appearance in the first half of the year, the last occasion being in the summer of 1900.

Hospital.—There is a large hospital, where seamen are received, near the Place des Consuls.

Communication.—There is a railway to Cairo, with branches to Damietta, Ismailia, Port Said, and Suez; also a railway to Ramleh and Rosetta.

Alexandria is in telegraphic communication with all parts of the world. Besides the land lines, telegraph cables are laid to Malta; Sitia, in Crete; Larnaka, in Cyprus; and Port Said.

Plan 243, Port of Alexandria.

The COAST of the peninsula, on which the city of Alexandria is situated, trends north-eastward $1\frac{9}{10}$ miles from Eunostos point to Pharos castle (*Lat. 31° 13' N., Long. 29° 53' E.*), and reefs lie generally from a quarter to half a mile off it.

Chart 2630, Alexandria to Port Said.

Shoals.—A shoal with $4\frac{1}{2}$ fathoms water was reported in 1876 to lie $1\frac{3}{4}$ miles, 332° true, from Pharos castle; it was searched for unsuccessfully by H.M.S. *Carysfort* in May, 1888.

Plan 243, Port of Alexandria.

Bittern shoal, a patch of 5 fathoms, lies 9 cables, 7° true, from the north-eastern extreme of Pharos castle.

New port (Eastern harbour), on the north-eastern side of the peninsula on which the city of Alexandria is situated, is entered between Pharos castle, and the Pharallon, which is near the end of Silsili (Silsileh), a low rocky point, projecting about $3\frac{1}{2}$ cables north-westward from the coast, about a mile to the eastward; the port is circular in shape, but is much encumbered by rocky patches and sand-banks.

Diamond rock, above water, lies about a cable north-eastward of Pharos castle. Yarf el Wasat, with $2\frac{1}{2}$ fathoms water, lies $1\frac{1}{2}$ cables eastward of Diamond rock. Shoal water extends nearly half a mile west-north-westward from the Pharallon. El Hassan, a patch with $2\frac{3}{4}$ fathoms water, lies a quarter of a mile northward of the Pharallon.

Occasionally vessels shelter in the port from south-west and westerly gales, but the anchorage is bad and should only be used temporarily, for north-west, north, and north-east winds throw in a heavy swell, and the holding ground is not good, being sand, rock, and weed.

Mooring buoy.—A red mooring buoy lies about $2\frac{1}{2}$ cables southward of the south-eastern extreme of Pharos castle.

General charts 374, 2630, 2606, 2158b, 449.

Plan 243, Port of Alexandria. Var. 2° 20' W.

Directions.—To enter New port pass either eastward of Yarf el Wasat, or between it and Diamond rock. There is also a passage
5 about 150 to 200 feet wide, with $3\frac{1}{4}$ fathoms water, between Diamond rock and the Pharos. The best anchorage is in about 4 fathoms water with the eastern side of Pharos castle bearing 335° true, and the Pharallon 80° true, avoiding El Ganem, a rock with less than 6 feet water, situated nearly a cable south-south-eastward of the south-
10 eastern extreme of Pharos castle.

Chart 2630, Alexandria to Port Said.

The coast from the eastern side of New port trends north-eastward 11 miles to Bourg fort on the extreme of the western point of Abukir bay, and is low and sandy, with several buildings on it. It is
15 skirted by rocks and shoal water, which in places extend $1\frac{1}{4}$ miles from the beach.

Plan 2681, Abukir bay.

About 3 miles west-south-westward of Bourg fort and $1\frac{1}{4}$ miles off-shore is a rocky patch (Ibn Assil), with less than 6 feet water.
20 Breakers were reported, in 1908, $1\frac{8}{10}$ miles westward of the eastern extreme of Bourg fort; a rock with less than 6 feet water, marked P.D., has been charted in the position, which has not been examined; a patch with 18 feet water lies $1\frac{1}{2}$ cables east-north-eastward of this position. A patch formed by ruins, with 9 feet least water, lies
25 $1\frac{3}{10}$ miles west-north-westward from Bourg fort; there is said to be about one foot water on the shoal at times; the sea always breaks on it.

Sultan shoal, with 28 feet water, lies $2\frac{2}{10}$ miles, 353° true, from the eastern extreme of Bourg fort.

30 **ABUKIR BAY** is situated between Bourg fort and the western point of the Rosetta mouth of the River Nile, 16 miles north-eastward, the land between, which is very low and sandy, forming a semicircle. Views on plan 2681.

Nelson island (*Lat. $31^\circ 21'$ N., Long. $30^\circ 6'$ E.*), nearly
35 $2\frac{1}{2}$ miles north-eastward from Bourg fort, is 3 cables long east and west, narrow, and moderately high, with two small peaks. From the western part of the island a reef of sunken rocks extends about three-quarters of a mile south-south-westward; there are depths of from 22 to 42 feet between this reef and the reefs eastward of Bourg fort.

40 **Culloden shoal.**—Patches of rocks and shoal water extend $1\frac{1}{2}$ miles north-eastward from Nelson island; Culloden, the outer of these shoals, has 16 feet water, and 5 to 10 fathoms close outside, but there are depths of from 22 to 30 feet for 4 cables to the eastward.

Islets and shoals.—Several islets and rocks, above and below
45 water extend half a mile north-eastward from Bourg fort. Within

General charts 2630, 2606, 2158b, 449.

Plan 2681, Abukir bay. Var. 2° 20' W.

1½ miles eastward of the outer of these islets are several patches with from 12 to 7 feet water, and for 1 $\frac{5}{10}$ miles further eastward the depths vary between 13 and 22 feet. The whole of the bay south-eastward of these shoals and Nelson island has depths between 14 and 24 feet, 5 decreasing towards the shore, but there are numerous patches of from 8 to 13 feet, for which *see* the plan.

Soundings.—The 10-fathom line from about 2 cables northward of Culloden shoal trends north-eastward to about 5 miles off the western point of Rosetta mouth, and the bay, north-eastward of the 10 shoal water in its south-western part, has general depths of from 10 to 5 fathoms to about one mile from the shore.

Directions.—Anchorage.—From the westward keep well northward of Sultan shoal (*Lat. 31° 22' N., Long. 30° 3' E.*), Nelson island, and Culloden shoal, in depths of from 20 to 11 fathoms, until 15 the eastern fort, near the closed entrance to Lake Edku, on the south shore of the bay, bears 167° true; then keep this mark, which leads about three-quarters of a mile eastward of Culloden shoal, on, and when Nelson island bears about 270° true steer towards it, and anchor a large vessel, with the island bearing between about 270° to 280° true, 20 distant 1½ miles, in from 42 to 60 feet water, sand bottom, observing that shoal water and foul ground extend about 7 cables eastward of the island.

In a small vessel, bring the quarantine staff in line with the south end of Bourg fort tower, 246° true, and keep this mark on until the 25 eastern peak of Nelson island is nearly abeam, when steer west-north-westward, and anchor in from 21 to 24 feet, with the eastern peak of the island bearing about 350° true, distant 6½ cables. There are several anchorages off the town and along the western shore, in about 18 feet water, sheltered from westerly winds, but local knowledge is 30 necessary to reach them.

Abukir village is on the west shore of the bay, about half a mile south-westward of Bourg fort. There is a railway station here on the line between Alexandria and Rosetta.

A tall chimney in the south-west corner of the bay is conspicuous. 35

Chart 2630, Alexandria to Port Said.

Edku village lies about a mile inland from the middle of the shore of the bay, and there are several windmills in front of it.

The RIVER NILE, a few miles northward of Cairo, divides into two main streams, which enter the Mediterranean by the Rosetta 40 and Damietta mouths; the area enclosed between the two branches is the present delta of the Nile.

General charts 2630, 2606, 2158b, 449.

Chart 2630, Alexandria to Port Said. Var. 2° 10' W.

- The annual rising of the Nile with its inundations (to which Egypt owes its prosperity) generally commences at Cairo about the end of June, but sometimes two or three weeks later; it continues about two months, and then gradually subsides. At this time the river rises from about 14 to 29 feet, when some 1,046,000,000 cubic yards of water pass Cairo every hour and flow into the Mediterranean; it carries a great quantity of sand and mud, which discolours the sea for many miles. Occasionally the discolouration assumes the appearance of a shoal.
- 10 The alluvial matter is taken away by the general easterly current, and forms the banks and shoal water along the coast to the eastward.

Plan, Rosetta mouth, on chart 2630.

- Rosetta mouth**, the entrance to the western branch of the Nile, is about half to a quarter of a mile broad; it is nearly barred by extensive mud and sandbanks, which extend about $1\frac{1}{2}$ miles outside the entrance, and partly dry. A very narrow channel, with 7 feet water, lies between the banks, about $1\frac{1}{4}$ miles north-westward of Rosetta lighthouse; the depth quickly increases to 12 and 20 feet as the river is entered, and is maintained for many miles.

- 20 On each side of the river, about a mile within the entrance, is a small fort. The town of Rosetta is beautifully situated in the midst of palm groves and gardens, on the western bank 8 miles from the mouth. The town, the population of which was 14,000 in 1908, has greatly declined since Alexandria has increased in importance, and many of the houses are in a ruinous state. There is a railway between Rosetta and Alexandria. Mosquitoes are very troublesome here.

- LIGHT.**—A light is exhibited, at 180 feet above high water, from a lighthouse on the western side of the Rosetta mouth. The lighthouse, painted white, is an iron tower with two supports, forming a tripod; the lantern is painted black. View on chart 2630.

Chart 2630, Alexandria to Port Said.

Caution.—Shoal water extends $2\frac{1}{4}$ miles northward of the lighthouse. The depths off Rosetta mouth are reported to have shoaled considerably.

- 35 **Cape Brulos** (Brullos) (*Lat. 31° 34' N., Long. 30° 59' E.*) is 34 miles eastward of the eastern point of the Rosetta mouth, and the coast between, which makes a slight bend to the southward, is very low and sandy. Maestaro, about 18 miles eastward of the eastern point of Rosetta mouth, and Maksada, $2\frac{3}{4}$ miles further eastward, are two sandhills, which are good marks when near the land. The small outlet of the extensive Lake Brulos is at Cape Brulos, and through it, during the inundations caused by the rise of the Nile, a large quantity of water flows into the sea. On the western side of the outlet is a

General charts 2630, 2606, 2158b, 449.

Chart 2630, Alexandria to Port Said. Var. 2° 0' W.

conspicuous round fort, and on the eastern, a village and several wind-mills, one of which is very large and noticeable.

Shoals.—A patch with 5 fathoms water lies $3\frac{1}{2}$ miles, 307° true, and a patch with $4\frac{1}{2}$ fathoms water $1\frac{1}{2}$ miles, 353° true, from the round fort on the western point of the outlet at Cape Brulos. 5

The coast from Cape Brulos trends east-north-eastward 6 miles to Brulos lighthouse, and is low sandhills.

Shoal.—A shoal with $3\frac{1}{2}$ fathoms water, hard sand, and from $4\frac{1}{2}$ to 6 fathoms around, lies 3 miles, 312° true, from Brulos lighthouse. Breakers have been seen on the shoal (*Lat. $31^\circ 37'$ N., Long. $31^\circ 3'$ E.*) during a moderate northerly wind. 10

LIGHT.—A light is exhibited, at 180 feet above high water, from a red iron tower, with two supports, the eastern white, the western black, forming a tripod, and the lantern red, situated 6 miles eastward of the cape, on the northernmost part of the low sandy coast of the delta of the Nile. View on chart 2630. 15

The coast from Brulos lighthouse curves gradually east-south-eastward and east-north-eastward, 40 miles, to the Damietta mouth of the River Nile, and is low sandhills. 20

Damietta banks, nearly in the middle of the bay thus formed, are three in number, and run parallel to the coast.

The outer bank, about 6 miles long east and west, and half a mile broad, has depths of 6 and 7 fathoms, but a patch with 5 fathoms water lies at its eastern end with Damietta lighthouse bearing 122° true, distant $9\frac{3}{4}$ miles, and $8\frac{1}{2}$ miles from the shore; the middle bank is 8 miles long and from a half to $1\frac{1}{4}$ miles broad, with depths of from 5 to 8 fathoms, but at its eastern end is a large patch with 3 and 4 fathoms water, the 3-fathom head lying with Damietta lighthouse bearing 103° true, distant $8\frac{1}{2}$ miles; and the inner bank, about 3 miles long, east and west, and one mile broad, with from 3 to 5 fathoms water, is 4 miles off-shore, and from its eastern end the lighthouse bears 86° true, distant about $10\frac{3}{4}$ miles. 25 30

There are depths of from 7 to 10 fathoms in the channel, about three-quarters of a mile wide, between the outer and middle banks; of from 7 to 9 fathoms in the channel, $1\frac{3}{4}$ miles wide, between the middle and inner banks; and southward of the inner bank the depths decrease from 6 and 7 fathoms to the shore. 35

Rosetta to Damietta.—Bottom.—Near the coast the bottom is principally sand, of a quartzose or siliceous nature, dark coloured, heavy, and quite different from the sand westward of Abukir bay, which is light in colour and formed of coral and shells. 40

General charts 2573, 2606, 2158b, 449.

Chart 2630, Alexandria to Port Said. Var. 2° 0' W.

Current.—The current is uncertain, but generally sets eastward at a rate of from one to $1\frac{1}{2}$ miles an hour, and after strong westerly winds occasionally as much as 2 miles, with an indraught setting strongly into the bays; near the land the current is more influenced by the winds and with north-easterly winds often sets westward.

Directions.—It is advisable not to approach Cape Brulos lighthouse nearer than 8 miles, nor to less than 12 fathoms, particularly eastward of the lighthouse; steer to pass about 5 miles northward of the 5-fathom patch of the outer Damietta bank, and in the vicinity of these banks do not shoal the water to less than 14 fathoms. Damietta lighthouse or light bearing 139° true leads 3 miles north-eastward of the 5-fathom patch of the outer bank. The lead should be kept going while in the vicinity of this coast.

15 Plan, Damietta mouth, on chart 2630.

Damietta mouth (Lat. $31^\circ 33' N.$, Long. $31^\circ 51' E.$) is the entrance to the eastern branch of the Nile. The western bank is a low sand-spit, the outer part of which has one to 2 feet water, extending rather more than 2 miles northward from the Tabiet el Gharib. The mouth between the end of this spit and Kawa burun, the low sandy eastern entrance point, about one mile east-south-eastward, is nearly filled by a sandbank, partly awash. A very narrow channel, with a shifting bar and from 3 to 7 feet water, lies between the sand-spit and the sandbank, and there is a similar channel, also with a shifting bar, and from one to 3 feet water, between the sandbank and a bank northward of Kawa burun. A heavy surf breaks on the banks, and communication with the river is frequently stopped for several days. The river deepens considerably inside the bar, there being 4 fathoms abreast the Tabiet el Sherkh, and there appears to be a least depth of $2\frac{1}{2}$ fathoms to Damietta town. Shoal water extends 2 miles northward of Kawa burun.

On the eastern side of the entrance is the Tabiet el Sherkh, and the lighthouse, both conspicuous, and visible from seaward before the land; on the same bank $1\frac{1}{4}$ miles farther up is the much larger Tabiet el Esbe.

LIGHT.—A light is exhibited, at 180 feet above high water, from an iron tower, with two supports, forming a tripod, all painted black and white in bands, and the lantern white, situated on the eastern side of the entrance to the Damietta mouth of the Nile. View on chart 2630.

Chart 2630, Alexandria to Port Said.

Caution.—The depths off the Damietta mouth for a distance of some 7 miles from the lighthouse were reported in 1910 to be considerably less than shown on the chart. Caution is necessary in approaching Damietta lighthouse, as shoal water extends $3\frac{1}{2}$ miles northward and

General charts 2630, 2573, 2606, 2158b, 449.

Chart 2630, Alexandria to Port Said. Var. 1° 45' W.

about 5 miles north-eastward of it, and there is an occasional indraught; the lead must therefore be constantly used. Damietta light has been mistaken for that of Port Said; attention is therefore required to the characters of the respective lights.

5

Plan, Damietta mouth, on chart 2630.

Anchorage.—Damietta is a rice-growing district; country vessels often anchor north-westward of the river bar in about 5 fathoms, and their cargoes are taken out in large boats. During westerly winds they frequently shelter under Kawa burun, where they are also out of the easterly current.

10

At the period of highest Nile the water of the river is so charged with alluvial matter that the wind can hardly raise it into waves, and the swell from the northward is completely arrested by it. It has been observed that when there was a heavy swell of a height of 6 feet from trough to summit outside the Nile water, inside this water, and on the bar, no swell was experienced. The period of high river is locally known as the Mishta season, and trading vessels then anchor very close to the bar in a depth of about their own draught.

15

Pilots.—There are three pilots attached to the port who, when a vessel is entering, remain in the channel at the entrance, and indicate the passage. When the mouth is closed by bad weather, the lighthouse will exhibit International code flag V.

20

Chart 2630, Alexandria to Port Said.

Damietta town, once the emporium of Egypt, is situated on the eastern bank of the river, 8 miles from the entrance; it is surrounded by palms and sycamore trees, but presents a poor appearance; like Rosetta, it has much declined since Alexandria has increased in importance.

25

There are two high towers in the town which are visible from seaward. The population was estimated at 34,109 Egyptians and 262 foreigners in 1913.

30

Trade and industries.—Rice, fish, and cotton seed, are exported, and wood, tobacco, cereals, oil, and charcoal are imported. Seed crushing for oil, rice husking, fish salting and curing are carried on.

35

Railway.—There is a railway from Damietta to Tanta, where it connects with the main line between Alexandria and Cairo.

Damietta to Port Said.—The coast from Kawa burun (*Lat. 31° 33' N., Long. 31° 52' E.*) to Port Said, 28½ miles south-eastward, curves slightly to the south-westward, and forms the Bight of Debeh. The shore of the bight is a strip of very low sand, in places about a cable wide, which separates the great Lake Menzaleh from the sea. At 15 miles from Kawa burun are the ruins of the square Fort Debeh, at the ancient Mendesian mouth of the Nile, now closed.

45

About 8 miles south-eastward of Debeh, and 6 miles westward of

General charts 2630, 2573, 2606, 2158b, 449.

Chart 2630, Alexandria to Port Said. Var. $1^{\circ} 45'$ W.

Port Said, is the Ghemil entrance to Lake (Beheira) Menzaleh; the channel is about half a cable wide with 4 feet water on the bar, deepening inside to 17 feet for about 700 yards, when it again becomes
 5 shallow; on the low reddish sandy coast on the western side of the entrance is Fort Ghemil, a low round building. View on chart 2573.

The 5-fathom line is from $2\frac{1}{2}$ to 5 miles, and near Port Said about 2 miles off-shore, within which the depths decrease gradually towards the land.

- 10 **Caution.**—The soundings outside the 10-fathom line cannot be depended upon, depths of from 6 to 8 fathoms having been reported off Damietta and Port Said.

- Tidal streams.**—A tidal inflow and outflow has been observed at Ghemil; the in-going stream sets along the coast from the westward
 15 and enters Lake Menzaleh obliquely; the out-going stream issues at a great rate after high water, and carries with it quantities of mud.

- Currents.**—The current off the coast generally sets eastward, but it frequently turns towards the land; this deflection sometimes appears to be produced by the wind. The distance off-shore at which the
 20 current caused by the Nile water from the Damietta mouth is experienced, varies considerably without apparent cause. A strong eddy setting north-westward has been observed along the coast between Kawa burun and Fort Debeh, and at the same time the current outside, as well as close along the shore, was setting strongly eastward.

- 25 **Port Said.—Approach.**—The coast in the vicinity of Port Said (*Lat. $31^{\circ} 16' N.$, Long. $32^{\circ} 19' E.$*) is unusually low, only the lighthouse, town, and shipping being seen from the offing. At 6 miles westward of the lighthouse the coast is marked by Fort Ghemil.

- Port Said lighthouse is reported to be more or less obscured during
 30 strong south-westerly winds, when sand is being blown about.

Two pillar beacons, each painted white and black, and surmounted by a ball, are situated on the coast about 2 and 4 miles eastward of Fort Ghemil.

Plan 234, Port Said.

- 35 The most conspicuous marks at Port Said are Port Said lighthouse and the three water towers, each 98 feet high, with conical tops and painted grey, the Eastern Exchange, a large square red block building with five flagstuffs on its roof, and the offices of the Canal company, a white square stone building with three green domes.

- 40 A large black beacon stands in 6 feet water about 4 cables south-eastward from the inner end of the East breakwater, and the salt works, a white building on piles with a white dome, are situated a little distance inland on the sands eastward of Port Said. On the coast, about 3 miles eastward of the lighthouse, is a beacon, a masonry
 45 column, 17 feet high, painted lower part white and upper part black, and surmounted by a staff.

Current.—The current off the coast is very uncertain, depending
General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

on the wind; it generally sets east-south-eastward at a rate of from a half to $1\frac{1}{2}$ miles an hour. Owing to the current and the low coast, caution is necessary in approaching the port.

Outer anchorage.—The best anchorage off Port Said is in 5
39 feet, with the extremity of the West breakwater in line with Port Said lighthouse, or a little open of the lighthouse on either side. The bottom is mud and very good holding ground, but the sea here is sometimes very heavy.

PORT SAID.—The harbour (*Lat. 31° 16' N., Long. 32° 19' E.*) 10
is formed by two concrete breakwaters extending from the sandy shore. The West breakwater extends $1\frac{3}{10}$ miles north-eastward from the western entrance point of the harbour, and for a distance of 427 yards from its root is solid stonework; with the exception of a short length, situated about 600 yards further out, which is also of solid stonework, 15
the remainder is constructed of artificial blocks of concrete, cast indiscriminately, the outer 600 yards being awash. Great interstices thus occur, and in winter, after heavy gales, some blocks are found displaced, but these are rectified in summer. The submerged portion of the breakwater is being continued $12\frac{1}{2}$ cables in a 33° true direction. 20

The East breakwater, the inner end of which is situated about 9 cables south-south-eastward from the inner end of the West breakwater, extends about $1\frac{4}{10}$ miles in a 12° true direction.

The Central mole commences about $2\frac{1}{2}$ cables south-eastward of Port Said lighthouse, and extends nearly 2 cables parallel to the East breakwater and $4\frac{1}{2}$ cables westward of it, into a depth of 12 feet; it shelters the harbour from easterly winds. 25

Channel.—The entrance channel to Port Said is straight, and its axis trends 217° true; its length from the outer buoys to Port Said lighthouse is 3 miles, and its breadth decreases from about a quarter 30
of a mile to about 90 yards.

The channel has been dredged from seaward to a depth of 36 feet, but the depths in the channel abreast of and outside the end of the West breakwater are liable to change.

Dredging operations to maintain a least depth of 35 feet in the fairway are always in progress. 35

Ismail basin or the Inner harbour is about a mile long north-east and south-west, with a breadth of from $1\frac{1}{2}$ to $2\frac{3}{4}$ cables, and depths over $32\frac{3}{4}$ feet; on its north-western side are three basins, named Commercial, Arsenal, and Cherif. Commercial basin, the outer one, 40
has a depth of $19\frac{1}{2}$ feet, Arsenal basin of $19\frac{1}{2}$ feet, and Cherif basin is being dredged to a depth of 31 feet.

Within and south-eastward of the Central mole is a large basin with depths of from 14 to 26 feet water.

From about $1\frac{1}{2}$ cables within the Central mole four islands extend 45

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

one mile south-westward; on the three inner islands (1st, 2nd, and 3rd) are coal stores. Between the islands and the land to the south-eastward is a coaling basin for lighters. On the north-west side of second island is the berth for vessels with explosives.

Abbas Hilma or Africa basin (*Lat. 31° 15' N., Long. 32° 19' E.*) is south-westward of Ismail basin, and on the west side of the canal entrance; it is chiefly used by vessels staying some time in the port, such as colliers, to relieve the harbour in front of the town from being inconveniently crowded. There is a general depth of 28 feet in this basin.

Petroleum basin.—On the east bank, opposite Abbas Hilma basin, is a small basin for the use of vessels with petroleum; the entrance is protected by iron floating booms. There is a depth of 28 feet in this basin.

New coaling basin.—A basin for colliers has been constructed southward of Abbas Hilma basin, by widening the canal sufficiently to make the east bank about 382 yards from the axis of the canal; the basin is about 710 yards long.

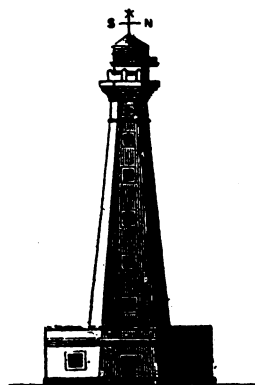
Plan 233, The Suez canal.

Petroleum basin.—A second basin for vessels with petroleum has been constructed on the east bank of the canal about 3 cables southward of the New coaling basin; it is about 382 yards long and 131 yards wide.

A station of 382 yards has been made between the New coaling basin and the Petroleum basin for vessels with liquid fuel.

Plan 234, Port Said.

Caution.—The canal company do not dredge in, or round the harbour, except in the channel and basins; the depth is continually altering, therefore the depths shown on the plan may not be correct.



Port Said lighthouse.
The time ball and mast on
the roof are not shown.

LIGHTS.—Port Said.—A light is exhibited, at 184 feet above high water, from an octagonal stone tower, 180 feet high, with time ball on roof, situated close to the inshore end of the West breakwater.

East breakwater.—A light is exhibited from the outer end of the East breakwater.

Central mole.—A light is exhibited from the outer end of the Central mole.

Lake light.—A light is exhibited from a black iron framework tower, 62 feet high, on the north-east side of Abbas Hilma basin.

General charts 2630, 2573, 2606, 2158b, 449.

Plan 23½, Port Said. Var. 1° 35' W.

Cherif basin.—A light is exhibited from a floating beacon off the south-eastern extreme of the basin.

Abbas Hilma basin.—A light is exhibited from a perch southward of the basin. 5

Occasional lights.—Lights are occasionally shown from the lookout at the Canal company's office, for aiding the navigation of the canal at night.

Light-buoys.—The channel (*Lat. 31° 18' N., Long. 32° 21' E.*) into Port Said is marked by five pairs of light-buoys; the buoys on the north-western side are painted red, and each exhibits a *green fixed* light, those on the south-eastern side are painted black, and each exhibits a *red fixed* light. 10

The outer pair of light-buoys, which are 2½ cables apart, are situated 3 miles north-eastward of Port Said lighthouse. 15

The outer extreme of the prolongation of the West breakwater is marked by a red light-buoy, showing a *green flashing* light; it is moved as necessary to mark the extreme of the works in progress.

Buoys.—The channel within the inner pair of light-buoys is marked by red can buoys on the north-western side, and by black can buoys on the south-eastern side. 20

Anchor lights.—Vessels moored in Port Said harbour carry the usual anchor lights, but those moored at right angles to the banks must carry the forward *white* light at the extreme head of the vessel, at a sufficient height for it to be clearly visible. 25

Tides.—It is high water, full and change, in Port Said at about Xh. 0m.; springs rise 1½ feet. The rise is much affected by wind and sea.

Sea level.—The height of the mean sea level at Port Said varies with the seasons; in February, after a continuance of westerly, southerly, and south-easterly winds, the sea is at its lowest level, and in July, after a continuance of northerly winds, it is at its highest. The mean difference, however, due to these causes, does not exceed 9 inches. Northerly gales occasionally raise the level one foot, and rarely 2 feet, above the previously existing level. During a period of six years, the difference between the highest and lowest levels observed amounted to 4½ feet. 30 35

The mean sea levels at Port Said and Suez are identical.

Pilots and pilot signals.—All vessels of over 300 tons gross measurement must take, on entering or leaving Port Said, a pilot of the Canal company, who will furnish all particulars as to the course 40

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

to be steered. The company have the right to send either a pilot or a master to vessels of less than 300 tons.

The pilot vessels are steamers, and their funnels are painted black with a white band; the word "Pilote" is painted on each bow; the vessels carry International code flag S, and at night three red lights vertical at the masthead.

A vessel requiring a pilot to enter Port Said by day should hoist International code flag S, or her national pilot flag, and at night hoist lights at the foremast head and fire rockets or burn blue lights.

The above will be thus answered:—

If the state of the sea permits the pilot vessel to go out:—

By day.—International code flag	} The pilot is going out to you.
S. at the pilot vessel's	
masthead - - -	
At night.—A white rocket - -	

Should the sea prevent the pilot boarding the vessel, the pilot vessel will make the following signals when near her:—

By day.—International code signal	} Follow the pilot vessel, the pilot will come on board under the lee of the breakwater.
N.G.S. - - -	
By night.—A blue light - -	

Should the sea prevent the pilot vessel going out:—

By day.—International code signal	} The pilot vessel cannot go out.
T.J.P. hoisted at Port	
Said lighthouse - -	
At night.—A red rocket - -	

Vessels in the harbour requiring a pilot by day hoist International code flag S, or the national pilot flag; and at night hoist three lights vertically at the foremast head. A vessel must give previous notice of her intention to leave the port.

Pilotage rates.—The pilotage charges in or out of Port Said are:—For vessels not going through the canal; by day, steam vessels 25 francs, sailing vessels 10 francs; and at night (between sunset and sunrise), steam vessels 50 francs, sailing vessels 20 francs. For vessels going through the canal; by day, all vessels free; and at night, steam vessels 25 francs, sailing vessels 10 francs.

Directions.—Lake Mensaleh lighthouse (*Lat. 31° 15' N., Long. 32° 18' E.*), seen midway between the lines of red and black light-buoys marking the sides of the channel, bearing 217° true, leads to the entrance; thence keep midway between the lines of these buoys, and the buoys marking the channel inside them, where the channel has been dredged to depths over 33 feet.

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

Vessels entering the channel from seaward, especially in heavy weather, should give a good berth to the black buoy, showing a red light, situated on the eastern side of the channel, 7 cables north-eastward of the outer end of the East breakwater, to avoid being set on the bank eastward of the channel. During strong westerly winds the current passes the outer end of the West breakwater and sets across the channel at a rate which sometimes attains 4 miles an hour; under the breakwater a weak current then sets north-eastward. 5

Should the sea prevent the pilot coming on board a vessel, he will, when near her, make the signal to follow the pilot vessel; it is then necessary to follow her closely to enter the harbour. But as the pilot may be unaware of the draught of the vessel, it is for the Captain's consideration as to whether he can follow with safety, or if he should keep at sea, or anchor. 10 15

No vessel should attempt to enter when the pilot vessel is prevented by the weather from going out.

A vessel entering in heavy weather, without a pilot, should steer about 217° true from well outside the outer light-buoys to midway between them, proceeding at a speed of about 10 knots, and then pass close to the north-western buoys; when under the lee of the West breakwater, the speed can be reduced and a pilot taken on board. 20

No vessel of heavy draught should attempt to enter Port Said during a westerly gale, especially at night.

If there are any dredgers at work in the channel, they must be passed on the side indicated by their signals. 25

The pilots, on coming on board, should be informed of the draught of the vessel; many of the pilots speak very little English, and in cases some have given their orders in the French way.

Vessels moor head and stern in the harbour. 30

Mooring buoys.—Several sets of mooring buoys are laid down in the harbour for the use of the mail steamers. Vessels are allotted berths by the officials of the Canal Company.

Caution.—Vessels are forbidden to sound steam sirens in any part of the port, and steam whistles are only to be sounded as alarm signals in cases of serious danger. 35

Salutes.—Vessels of war are requested not to fire salutes or guns in any part of the port or the canal, according to regulations. Salutes are permitted outside the harbour, but they should be fired when well clear of the outer light-buoys as the buoys have been damaged through the firing having occurred close to them. Vessels saluting the Egyptian flag on entering or leaving the port will have the salute returned by the battery situated on the shore close westward of the West breakwater. 40

Signals.—There is a Lloyd's signal station at Port Said light-house (*Lat. 31° 16' N., Long. 32° 19' E.*). 45

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

Vessels arriving are signalled at the Canal Company's office. When they are sighted a square blue flag is hoisted, and when made out, if a vessel-of-war, the national ensign is hoisted at the yardarm, and if a merchant vessel, the flag of the company to which she belongs.

Signals by certain vessels.—The following signals must be hoisted on entering Port Said (*Lat. 31° 16' N., Long. 32° 19' E.*):—

By mail steam vessels.—A blue flag with the letter P in white in the middle by day, and a *white* light at night.

By tank steam vessels carrying petroleum, oil, or other petroleum products in bulk:—When the petroleum has a flash point below 73·4° Fahrenheit, a ball above a red flag by day, and a *white* light under two *red* lights.

When the petroleum has a flash point between 73·4° and 150·8° Fahrenheit, a red flag over a ball by day, and two *red* lights over one *white* light at night.

By steam vessels with explosives on board.—A ball over a red flag by day, and one *white* light over two *red* lights at night.

By vessels under compulsory quarantine.—A yellow flag by day, and a *red* light at night.

By vessels under voluntary quarantine.—Two yellow flags, one over the other, by day, and two *red* lights, placed vertically, at night.

By vessels with coal cargoes for Port Said.—International code flag J by day.

Dredger signals.—The following signals are exhibited by dredgers:—

A cylinder at the yard arm, by day, and a *white* light at the mast-head, with two *white* lights placed horizontally on one side of the bulwark, at night, indicate that the passage is clear on the side shown.

A cylinder at both yardarms, by day, and a *white* light at the mast-head, with two *white* lights placed horizontally on both sides of the bulwark, at night, indicate that the passage is clear on both sides.

Two cylinders, placed vertically, at the yardarm, by day, and a *red* light at the masthead, at night, indicate that the passage is not clear.

Storm signals.—The following storm signals are made at Port Said lighthouse by day only, about 3h. p.m., but their exhibition is not guaranteed on Fridays and holidays:—

Signal.	Signification.
Cone, point upward - - -	Gale commencing from between west and north.
Cone, point downward - - -	Gale commencing from between south and west.
Two cones, one above the other, points upward.	Gale commencing from between north and east.
Two cones, one above the other, points downward.	Gale commencing from between east and south.
Two cones, bases together - - -	Very heavy gale.

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

Silt at Port Said.—The current from the mouths of the Nile, setting eastward, deviates on striking the West breakwater; one part turns northward and rounds the head of the breakwater, whilst the other penetrates through the spaces between the blocks, and forms a bank of sand along the eastern side of that breakwater. 5

Periodically the Canal Company displaces the blocks at the inner end of the breakwater, so that the current may pass through and deposit the sand on its eastern side, as it is easier to dredge the sand away from here than at the northern end of the breakwater. 10

The coast westward of the inner end of the West breakwater has advanced seaward about 600 yards since 1860, and there is now a broad road running along it in front of the English hospital, outside which is a sandy beach about 50 yards wide, and increasing.

The town of Port Said (*Lat. 31° 16' N., Long. 32° 19' E.*), situated on the western side of the harbour, is well laid out, the streets being bordered with trees; it is lighted by both gas and electric light. The place has been considerably improved of late years, Government offices, barracks, prison, Roman Catholic church, the Suez Canal Company's offices, and many houses having been built; there is an English hospital, British seamen's hospital, Egyptian Government hospital, a sailors' boarding-house, and sailors' rest. 15 20

Parallel with the line of railway which has been laid between Port Said and Ismailia is a fresh-water canal. The town is supplied with water from Ismailia through pipes laid alongside the canal, a distance of 43 miles. 25

The population is estimated to be 57,404 in 1913. Some 47,000 are natives, the majority of whom are engaged loading and discharging coal; 1,800 are British, and the remainder are Europeans of almost every nationality. 30

The languages most spoken at Port Said are English, French, Italian, Greek, Arabic, and Maltese. English is very generally understood by Government and other officials.

There are a British Consul-General and a Vice-Consul here.

Quarantine.—Plague.—The Health officer boards vessels as soon as they enter the port. The presence of the first case of bubonic plague at Port Said was officially declared in 1900; there were 25 cases in 1913. The quarantine regulations at European ports on all arrivals from this country apply to Port Said as well as to Alexandria. Vessels are permitted to pass through the canal in quarantine without communicating with the shore, and passenger steam vessels and some cargo steamers do so, if plague or cholera exists in Egypt. The canal pilot remains on board during the whole transit of the canal. 35 40

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

The quarantine station is situated on the east bank of the Suez canal, between the second and third milestones; there is also a floating quarantine office in Abbas Hilma basin.

- 5 **Hospital.**—There is a hospital, subsidised by the Egyptian Government, where sick seamen can be received.

Time signals.—A black ball is hoisted, 5 minutes before the signals, at an iron lattice-work mast, 30 feet high, surmounting Port Said lighthouse, and dropped three times daily, at 8h. 0m. 0s. a.m., 10 noon, and 4h. 0m. 0s., standard time, or mean time of the meridian of 30° East longitude, or 18h. 0m. 0s., 22h. 0m. 0s., and 2h. 0m. 0s., respectively, Greenwich mean time.

The ball, which is 4½ feet in diameter, is 199 feet above high water, 192 feet above the ground, and has a drop of 4½ feet.

- 15 Should the signal fail, a red and white chequered flag is shown from the top of the lighthouse, but the signal is not repeated until the next regular time for making it arrives.

The time signal is electrically connected with the observatory at Helwan, near Cairo.

- 20 Chronometers can be compared at any time on application at the Port office; a charge of 20 piastres (4s. 2d.) is made.

Coal.—About 100,000 tons of coal are usually in stock at Port Said. It is placed on board, the vessels being at moorings about 30 yards off-shore, in quantities up to 2,500 tons in 24 hours, according to bunkers and trimming, from special lighters, the natives employed 25 keeping up a quick and continuous stream with coal baskets. Coaling is rarely impeded by the weather.

The amount of coal imported into Port Said (*Lat. 31° 16' N., Long. 32° 19' E.*) in 1913 was 1,957,323 tons. There is no coal wharf.

- 30 **Supplies** of all kinds can be obtained. Water is brought alongside in steam lighters fitted with steam pumps; it is obtained from the canal from Ismailia, and, being filtered through sand at the water-works a little southward of Abbas Hilma basin, is very good. A large quantity can be supplied by giving a few days' notice.

- 35 There are good manufactories of artificial block ice.

Trade.—The principal exports are cigarettes, hides, wool, salt, and salt and smoked fish; and imports flour, coal, soap, horses, mules, asses and camels, metal and metal wares, raw silk and thread, mixed tissues of jute, cotton, wool, flax, and silk, ready-made clothes, and preserved 40 and salt meat.

The value of the exports in 1913 was £E.448,426, and that of the imports £E.2,801,570.

Shipping.—In 1913, 922 steam vessels, with an aggregate tonnage of 1,626,620 tons, entered the port in the foreign trade, exclusive of

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 35' W.

those passing through the canal. Of these vessels, 496, with an aggregate tonnage of 800,145, were British.

Docks.—See Appendix I.

Repairs.—Large repairs to machinery can be executed by the Suez Canal Company, who possess three cranes of 35 tons, one of 8, and two of 6 tons, also an 8-ton and two 3-ton floating sheers; there is a large smithy with steam hammers of $1\frac{1}{2}$ to 4 tons. Castings up to 4 tons can be made, cylinders of 60 to 72 inches diameter can be cast and bored, boilers of any size repaired, $7\frac{1}{2}$ -inch pipes brazed, and shafting of 12 inches by $15\frac{1}{2}$ feet forged and turned. There are two brass furnaces.

There is a water-side frontage to the works of 450 yards, with not less than 19 feet alongside at low water.

The Canal Company's works are on the eastern side of the harbour (Lat. $31^{\circ} 16' N.$, Long. $32^{\circ} 19' E.$).

Messrs. Dowrie & Co. execute large repairs to machinery and boilers; boilers of 72 inches diameter can be made, shafts 15 inches by 14 feet or 10 inches by 20 feet turned, pipes 18 inches in diameter brazed, masts made, and boats built. There are three brass furnaces; lathes will take work of 5 feet radius.

Messrs. Vignetta & Co. are also able to effect heavy repairs; they have several lathes, also one 8-ton and two 3-ton floating sheers. There are two brass furnaces; 800lbs. of brass can be cast daily.

Communication.—Port Said is in communication with all parts by steamer and telegraph. A railway connects Port Said with Ismailia and thence with the Egyptian railway system. A telegraph cable is laid between Port Said and Alexandria.

Wireless telegraph.—A wireless telegraph station, open to the public at all times, is established at the Navy house, Cherif basin, Port Said; the call letters are S.U.B.

Menzaleh canal.—A deep and wide channel has been dredged across Lake Menzaleh, between Port Said and Matarieh, and a daily service of ferry boats runs in co-operation with the light railway between Matarieh and Mansûra, on the Damietta branch of the Nile. The channel has been continued from Matarieh to the Nile, a little above Damietta.

Winds.—The heaviest gales at Port Said (Lat. $31^{\circ} 16' N.$, Long. $32^{\circ} 19' E.$) are from the south-westward, but being off-shore they produce no sea. West, north-west, and north winds prevail at Port Said and in the canal during winter; the West breakwater at Port Said then affords protection from the sea. During summer the north-easterly sea breezes are very regular and blow fresh in the afternoon.

General charts 2630, 2573, 2606, 2158b, 449.

Plan 234, Port Said. Var. 1° 30' W.

Meteorological table.—See Appendix III.

Suez canal.—The Suez canal, which is entered from Ismail basin, is described in the Red Sea and Gulf of Aden Pilot.

5 *Chart 2573, Damietta to El Arish.*

BAY of TINEH or Pelusium.—The coast eastward of the inner end of Port Said East breakwater trends south-eastward 16 miles to Tineh or Pelusiac mouth (*Lat. 31° 3' N., Long. 32° 34' E.*), and thence eastward 7 miles and north-eastward 22 miles to Kas
10 burun.

The coast is extremely low, the part from 7 miles eastward of Tineh mouth being a very narrow sand strip separating Lake Sirbon (Saba-kat Bardowal) from the sea.

Tineh, the great bay thus formed, is very shallow, the 5-fathom line
15 being 7 miles from Tineh mouth; on the eastern side are several sand-banks with from 2 to 4 fathoms water; the outer one, 3 miles long north-east and south-west, with from 3 to 4 fathoms water, lies with its north-east extreme bearing 327° true, 10 miles, from Kas burun.

Depths of 6 and 7 fathoms have been obtained 14 miles, 322° true,
20 from Kas burun, 8 fathoms 2 miles further northward, and the 10-fathom line was reported, in 1914, to be about 6 miles northward of its charted position.

Kas burun (ancient Casius Mons), the eastern point of Tineh bay, is a small but remarkable range of sandhills 270 feet high; here
25 the sand strip separating Lake Sirbon from the sea is one mile broad.

An obstruction has been reported (1914) 3 miles north-westward of Kas burun.

The coast from Kas burun trends eastward 16 miles to Ras Mahatib, and is a narrow and very low sand strip, which continues
30 9 miles further south-eastward, between Lake Sirbon and the sea. There are some huts on the sand strip $6\frac{1}{4}$ miles eastward of Kas burun. The coast from 9 miles south-eastward of Ras Mahatib trends eastward 13 miles to El Arish, and is low and sandy. There is a palm grove about 5 miles westward of El Arish.

35 **Sandbanks.**—A number of sandbanks, with from 2 to 4 fathoms water, and depths of from $5\frac{1}{2}$ to 9 fathoms between, lie off the coast between Kas burun and Ras Mahatib; the banks extend 8 miles north-north-eastward from Kas burun, and about 2 miles north-eastward of Ras Mahatib; a narrow shoal, with from 2 to 3 fathoms
40 water, extends $2\frac{1}{2}$ miles south-eastward from $1\frac{1}{2}$ miles north-eastward of the cape. Eastward of these banks the soundings decrease gradually to the beach; abreast El Arish the 5-fathom line is about half a mile from the shore.

General charts 2606, 2158b, 449.

Chart 2573, Damietta to El Arish. Var. 1° 20' W.

The depths in the vicinity of Kas burun and out to the 10-fathom line are reported (1914) to have shoaled considerably.

EL ARISH (*Lat. 31° 6' N., Long. 33° 48' E.*), the small frontier town of Egypt, and fort, is situated in a valley, behind palm trees and sand dunes, about $1\frac{3}{4}$ miles from the beach; the fort is flat-topped, with a flagstaff in the middle, and a white minaret on its eastern side is conspicuous. Landing can be effected with but little difficulty in moderate weather, an outer bar of sand, on which the sea breaks, running parallel to the shore for some distance. 5 10

Current.—The current off El Arish appears to set eastward at a rate of about three-quarters of a mile an hour, decreasing to about half a mile outside the banks.

Caution.—The coast between Port Said and El Arish, a distance of 77 miles, with the exception of Kas burun, is extremely low, with many shoals extending far off it, and navigation requires the greatest caution, particularly in autumn and winter, when north to west winds prevail and often blow hard. In February and March dense fog is not uncommon. The lead is the only guide, and must be constantly used; the depth should not be reduced to less than 10 fathoms, but between the meridians of 33° and 33° 20' E. longitude not below 20 fathoms, as the 10-fathom line approaches the outer shoals off Kas burun very closely. 15 20

General charts 2606, 2158b, 449.

CHAPTER III.

COAST OF KARAMANIA.
CAPE ALUPO TO KARADASH BURNU.

Lat. 36° 33' N., Long. 28° 1' E., to Lat. 36° 32' N., Long. 35° 20' E.

VARIAION IN 1917.—Decreasing about seven minutes annually.

Chart 236, Rhodes island to Kara burnu. Var. 2° 0' W.

CAPE ALUPO (ancient Cynossema prom.) is the southern extreme of the long and narrow peninsula which separates the Gulfs of Doris and Symi from Rhodes channel. The coast of the peninsula from
 5 Cape Alupo trends generally east-north-eastward 19 miles, to Cape Marmarice; it is steep, rugged, and rises to a range of limestone mountains some 1,500 feet in average height. There are numerous ancient and middle-aged ruins on the land.

Rock.—A sunken rock lies at the base of Cape Alupo, therefore do
 10 not round the cape closely.

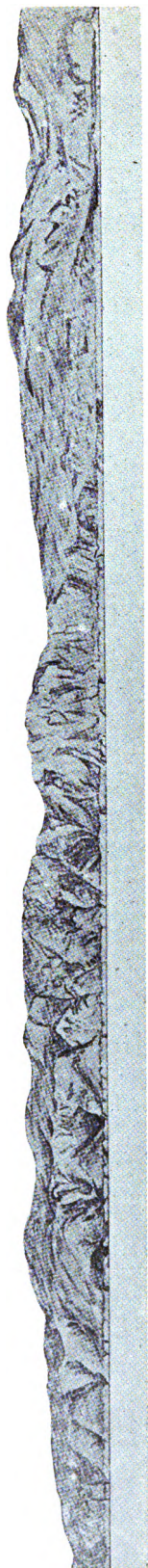
Port Aplotheke (*Lat. 36° 34' N., Long. 28° 4' E.*) is nearly 2 miles eastward of Cape Alupo, and there are several bold points on the coast between. The port extends north-westward three-quarters of a mile, with a width of about a quarter of a mile, and the depths
 15 decrease from 33 fathoms in the entrance to 11 fathoms near the head, where there is anchorage. A rock, above water, lies close to the shore just within the western entrance point, and sunken rocks lie at the base of the eastern entrance point; the interior of the harbour is clear. The ruins of a large fortress stand on a rocky barren ridge north-
 20 westward of the port, and the extensive ruins of the ancient town Loryma, are on the shores around the port.

Supplies are limited, and not to be depended on, and the only water to be obtained is brackish.

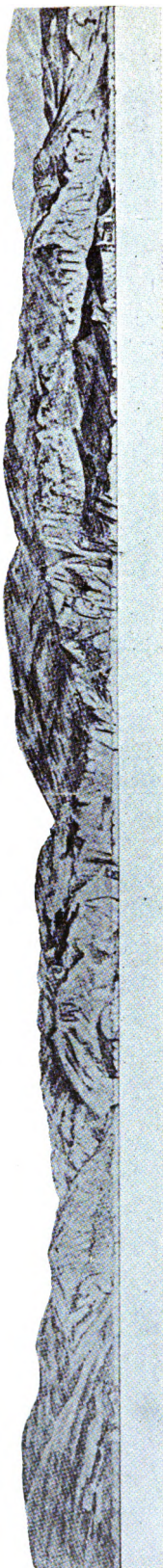
Ipsera island.—The coast from the south entrance point of
 25 Port Aplotheke trends eastward half a mile to a point, close off which are several rocks and an islet. Ipsera island, one-quarter of a mile southward of the point, is separated from the islet just mentioned by a passage about a cable wide, with 10 fathoms water in mid-channel.

Port Sertchek.—The coast from Ipsera island trends north-
 30 eastward $1\frac{1}{2}$ miles, to the entrance to the small Port Sertchek (ancient Sersa), which is only available for small vessels.

General charts 2836a, 2606, 2158a, 449.



Elessi island bearing 287° true, 6 miles.



Cape Aspro-mitas bearing 350° true, 7 miles.

Coast of Karamania, south-westward of Cape Marmarice.

Chart 236, Rhodes island to Kara burnu. Var. 2° 0' W.

Prinari bay.—Cape Prinari is about $1\frac{1}{4}$ miles eastward of Port Sertchek, and Prinari bay extends three-quarters of a mile northward between them; its shores are steep and rocky, and there is no anchorage. The ruins of the ancient Phoenix are on the summit of a mountain 1,780 feet high, situated $1\frac{1}{2}$ miles north-eastward of the bay. 5

KUM BURNU (*Lat. 36° 27' N., Long. 26° 18' E.*), the north-east extreme of Rhodes island, bears 139° true, $9\frac{3}{4}$ miles, from Cape Prinari; it is low, sandy, and steep-to; there are a number of wind-mills on it. 10

LIGHTS.—A light is exhibited, at 53 feet above the sea, from a mast on a white house, situated about 280 yards within Kum burnu.

A light is exhibited, at 82 feet above the sea, from a white tower 82 feet high, in Fort St. Elmo, Rhodes harbour, about three-quarters of a mile southward of Kum burnu. 15

Channel.—The channel between the coast from Cape Alupo to Elesia island, on the north-west, and Rhodes island, on the south-east, is nearly 10 miles wide, deep, and clear. The current generally sets westward.

Caution.—In winter, southerly winds prevail, and are accompanied by cloudy weather and thick haze, when caution is necessary in navigating the channel just mentioned. 20

Elesa island.—The coast from Cape Prinari trends north-eastward, and 2 miles from the cape, and 3 cables off-shore, is Elesia island (ancient Elæussa), with a deep and clear passage between it and the land. 25

Araba islet (Arap adasi).—The coast between Elesia island and Cape Aspro-mitas, 7 miles north-eastward, continues high, rugged, and steep-to, and there is an anchorage under the rocky Araba islet, 3 miles north-eastward of Elesia island, but it is small, and available for boats only. Views at page 100. 30

Chart 1545, Marmarice and Karaghatch harbours.

Chifik island.—A point juts out about half a mile from the coast half a mile northward of Cape Aspro-mitas, and Chifik island (ancient Phalarus), about a mile further north-eastward, and close off-shore, lies in the entrance to a small but snug cove about half a mile deep, with from 13 to 3 fathoms water, which is frequented by boats from Rhodes for firewood. 35

Water.—A limited supply of water can be obtained here, even in summer, by digging on the beach. 40

The coast between Chifik island and Pandion point, about 2 miles to the eastward, falls back one mile to the northward, form-

General charts 236, 2336a, 2606, 2158b, 449.

Chart 1545, Marmarice and Karaghatch harbours. Var. 2° 0' W.

ing a deep bay, the shores of which are high, precipitous, and steep-to, but foul ground extends a short distance off Pandion point.

CAPE MARMARICE (ancient Posidium promontory)

- 5 (Lat. $36^{\circ} 44' N.$, Long. $28^{\circ} 21' E.$), one mile north-eastward of Pandion point, is the south-west point of the bay, at the head of which is Marmarice harbour; it is of moderate height, but a very picturesque mountainous range rises immediately behind it, and attains an elevation of from 2,700 to 2,900 feet. View at page 104.

- 10 **LIGHTS.**—Lights are exhibited from a mast over a white dwelling with a red roof, situated 54 yards within the cape.

- The coast.**—Immediately northward of Cape Marmarice, a small bight, the mouth of which is about 3 cables wide, extends westward 4 cables, and thence the coast trends north-north-westward 8 cables to 15 Paridion point. Between Paridion point and the south-east point of Kumlubek bay, nearly 3 cables north-westward, some rocks above water extend nearly a cable off-shore.

- Kumlubek bay.**—The north-western point of Kumlubek bay, is nearly a mile north-westward of the south-eastern point; the bay is 20 about 7 cables deep, and open to the north-east, but it affords good anchorage in from 9 to 17 fathoms sand, sheltered from north-west, through west, to south. A heavy swell sets in with south-easterly gales.

- The ruins of Asarjik (ancient Samus) are situated on a cliff on the 25 north-west point of the bay.

- The coast.**—Karghi adasi (Lat. $36^{\circ} 46' N.$, Long. $28^{\circ} 19' E.$), an islet 39 feet high, lies about $3\frac{1}{2}$ cables north-north-eastward from the north-western point of Kumlubek bay; it is steep-to, excepting on the south side; a quarter of a mile westward of the islet is a high rocky 30 point with shoal water extending nearly 2 cables north-eastward from the coast 2 cables north-westward of it. About 8 cables north-westward from the point is the entrance to a snug little cove, where coasting vessels take in cargoes of wood, honey, and corn. Thence to the western entrance point of Marmarice harbour, a distance of three- 35 quarters of a mile, the coast trends northward, with several indentations and rocky points between.

- Nimada peninsula**, which shelters Marmarice harbour from the southward, is irregular in shape, about $1\frac{3}{4}$ miles long east and west, and $1\frac{1}{2}$ miles broad; it rises to a hill in the middle, 1,354 feet high, and 40 is connected to the eastern shore by a shingly isthmus, about 250 feet wide. The hill is covered with pine trees, and on its summit are the ruins of a fortress.

General charts 236, 2836a, 2606, 2158b, 449.

Chart 1545, Marmarice and Karaghatch harbours. Var. 2° 0' W.

Passage island, westward of Nimada peninsula, is irregular in shape, about three-quarters of a mile in extent, 603 feet high, and West and East passes, which lead into Marmarice harbour, are on either side of it. 5

LIGHT.—A light is exhibited from a mast over a white dwelling with a red roof on Adasi burnu (*Lat. 36° 48' N., Long. 28° 18' E.*), the south extreme of Passage island.

West pass is circuitous, and Kaia rock, well above water, lies nearly in mid-channel, but it is otherwise deep and clear to about one cable from the shores. The pass, eastward and northward of Kaia rock, has a least width of about $2\frac{1}{2}$ cables. 10

East pass, between Passage island and Nimada peninsula, is one mile long and nearly half a mile broad; it is straight, and the shores are high, precipitous and bold-to, excepting a small rocky shoal which extends half a cable from the shore, 3 cables southward of the north point of the island. 15

MARMARICE HARBOUR (ancient Physcus) extends about $2\frac{1}{4}$ miles northward of Nimada peninsula, with a greatest breadth of $3\frac{1}{2}$ miles, and depths of from 20 to 7 fathoms; it is landlocked, and affords secure anchorage, with good holding ground; the shores are steep-to and the harbour is clear, excepting on the north-western side, where a flat with 3 fathoms and less water extends off 3 cables. The mountains on the western side of the entrance are high and picturesque, but the north-western shore is bounded by a plain, with several small streams running through it in winter, which are nearly dry in summer. Long island, on the south side of the harbour, about 2 cables northward of the middle of Nimada peninsula, is half a mile long east and west, about a cable broad and steep-to. The passage between it and the peninsula is deep and narrow. 20 25 30

The village (*Lat. 36° 51' N., Long. 28° 19' E.*), situated at the head of the harbour, $2\frac{1}{4}$ miles north-north-eastward of East pass, is some miserable houses, placed without any regularity on a rocky eminence; there is an ancient fort on a hill $1\frac{3}{4}$ miles north-westward of it.

The Turkish flag is flown from the Custom-house. A three-storied house, painted yellow, with a red roof, is situated near the shore about 4 cables westward of the village. 35

There is a mole, with 4 feet water alongside it, on the south-western side of the village, and a pier, also with 4 feet water alongside it, on the shore about 4 cables further westward, and near the barracks. 40

The country around the village is fertile but thinly inhabited; its principal productions are honey, turpentine, and timber; the surrounding mountains are covered with pine trees, which, from difficulty of transport, are only available as firewood.

General charts 236, 2836a, 2606, 2158b, 449.

Chart 1545, Marmarice and Karaghatch harbours. Var. 2° 0' W.

Supplies.—Beef, poultry, and eggs are obtainable. Cattle and provisions can be procured from the interior, and vegetables from Rhodes, with which place, when weather permits, there is daily communication. Water can be had in abundance; there are two springs in an enclosure eastward of the village; in winter it can be obtained from any of the streams which flow into the harbour; there are also a few small springs on the western side of the harbour.

Coal.—No coal is kept in stock.

Telegraph.—A cable is laid to Rhodes. The cable is landed in the bay $1\frac{1}{2}$ miles south of Adasi lighthouse; connection thence by land lines to Marmarice and Smyrna.

Caution.—A sailing vessel cannot generally get out of the harbour during southerly winds, as there is then a heavy swell, and the wind is very unsteady in the narrow passages, coming down the ravines in squalls and eddies.

False bay is a deep bight on the south-eastern side of Nimada peninsula, and southward of the narrow isthmus joining the peninsula to the main. When approaching Marmarice harbour at night, the lights in the village, or from vessels in the harbour, may be seen over the isthmus.

The coast from the isthmus at the head of False bay trends east-south-eastward 4 miles to a point, about a cable off which is Black rock, above water, with foul ground close around and between it and the shore. The coast then turns eastward to Chatal burnu, the south-western entrance point of Karaghatch harbour, a distance of little more than a mile. View at this page.

Edmonds rock, a small patch with 2 feet least water, on which the sea generally breaks, lies a mile south-westward from Chatal burnu. There is a clear passage between the rock and cape.

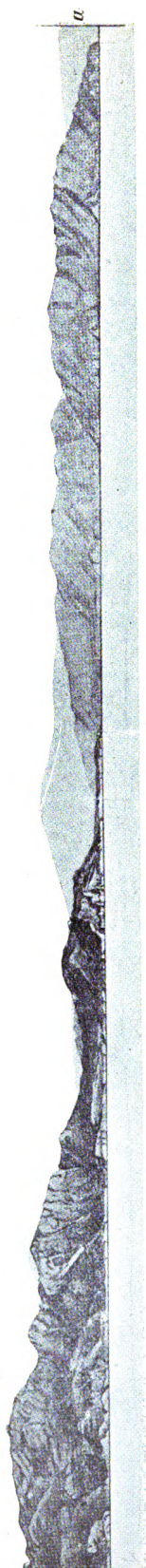
Caution.—A current, varying in direction, has been observed to set over Edmonds rock at a rate of from half to $1\frac{1}{2}$ miles an hour.

Linosa island (ancient Rhodussa), the western point of which lies about $1\frac{1}{2}$ miles south-eastward of Chatal burnu, extends thence three-quarters of a mile east-north-eastward, with a greatest breadth of 4 cables; it is 327 feet high and steep-to. View at this page.

Bank.—A patch, with 19 fathoms water, marked “Ocean, 1909” on charts, and from 35 to 70 fathoms around, lies $1\frac{1}{2}$ miles, 166° true, from the south-east point of Linosa.

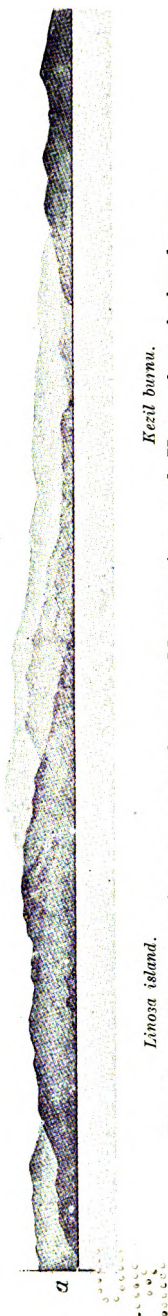
The coast from Chatal burnu (*Lat.* $36^\circ 47' N.$, *Long.* $28^\circ 27' E.$) trends north-north-eastward $3\frac{2}{10}$ miles to Inek burnu, and is the western shore of the channel leading to Karaghatch harbour; it is

General charts 1886, 236, 2836a, 2606, 2158b, 449.



Cape Marmarice bearing 12° true, 10 miles.

Chatal burnu.



Coast of Karamania; approaches to Marmarice and Karaghatch harbours.

Kezil burnu.

Linosa island.



Chart 1545, Marmarice and Karaghatch harbours. Var. 2° 0' N.

bordered by rocks and shoal water to the distance of a cable in places, and some high conical rocks with foul ground outside extend a cable off a point 6 cables southward of Inek burnu.

Skizo burnu lies 3 miles east-north-eastward of Chatal burnu, and from it the eastern shore of the channel, leading to Karaghatch harbour trends northward $2\frac{4}{10}$ miles to Koïoun burnu; shoal water and foul ground extend less than a cable off it in places. 5

KARAGHATCH HARBOUR (ancient Cressa) is separated from Marmarice by a mountainous peninsula 5 miles long and 3 miles broad, over which is a rugged path. The channel leading to the harbour is about $1\frac{1}{2}$ miles long and about a mile broad. 10

The harbour, northward of Inek burnu, turns westward $2\frac{1}{4}$ miles, and has a general width of a little less than a mile; it affords secure anchorage in from 10 to 25 fathoms, good holding ground. Uruk cove, on the north side, is well sheltered, and vessels might repair here. 15

Two rocks lie off a point situated $1\frac{3}{10}$ miles north-north-eastward of Inek burnu; the inner rock is 12 feet high, and the outer one, which is about a cable off the point, is 2 feet high, and the water is shoal inside it. 20

East islet (*Lat. 36° 52' N., Long. 28° 29' E.*), three-quarters of a mile north-westward of Koïoun burnu, and a cable off the north shore, is 191 feet high, and bordered for about half a cable by shoal water; there is also shoal water between it and the north shore. 25

A bay, about three-quarters of a mile in extent, with from 12 to 21 fathoms water, lies eastward of East islet, and a bay about 4 cables wide and three-quarters of a mile deep, with from 18 to 7 fathoms water, lies north-north-eastward of the islet.

Karaghatch harbour is better than Marmarice for sailing vessels requiring shelter, as from the width of its entrance it can be entered in any weather and left when the weather moderates. 30

Supplies.—Live stock may be obtained from a wandering tribe which frequents Uruk valley, and firewood can be cut close to the sea in the western anchorage. 35

Water is very plentiful at any season in the bay in the north-east part of the harbour; there is also a convenient watering place in the southern part of the bay on the east side. In winter the streams are numerous.

Skizo bay lies between Skizo burnu and a point $1\frac{4}{10}$ miles east-south-eastward, and extends one mile north-eastward to a sandy beach, off which there might be good anchorage in south-easterly winds, but the bay is open to the south-west. 40

General charts 1886, 236, 2836a, 2606, 2158b, 449.

Chart 1545, Marmarice and Karaghatch harbours. Var. 1° 50' W.

The coast from the southern point of Skizo bay trends south-eastward nearly a mile to Orta burnu, $1\frac{1}{4}$ cables south-south-westward of which is a rock awash. A bay extends about 6 cables north-eastward between Orta burnu and a point three-quarters of a mile east-south-eastward, whence the coast trends east-south-eastward 8 cables to Kezil burnu, which is bordered to the distance of about one cable by rocks above and below water. View at page 104.

KEUGEZI BAY, the entrance to which lies between Kezil burnu and a point about $2\frac{3}{4}$ miles east-north-eastward, extends about $1\frac{1}{2}$ miles to the northward, and has depths of from 40 to 17 fathoms; it is open to the southward, but Ekinjik harbour, on its north side, is a little anchorage, safe for small vessels in any weather.

Chart 1886, Karaghatch to Makri.

An islet lies close southward of the eastern entrance point of the bay, and off the mouth of Keugezi river, on the right bank of which, and about $2\frac{1}{4}$ miles inland, are the ruins of the ancient city Caunus; the walls and rock tombs of the city are conspicuous from seaward.

The coast from the eastern point (*Lat.* $36^{\circ}48'N.$, *Long.* $28^{\circ}39'E.$) of Keugezi bay trends southward $6\frac{1}{2}$ miles to Kapnia burnu, and is a succession of bays separated by bold rocky points; the water in the northern of these bays shoals gradually, and in its southern part is some foul and rocky ground; the other bays have deep water.

Keugezi lake, the water of which is brackish, lies $4\frac{1}{4}$ miles north-north-eastward of Keugezi river mouth; it is 6 miles long north-east and south-west, and from one to 3 miles broad, with depths of from 3 to 14 fathoms; a small village lies on the north-east shore. Yuvalaki chai, which during winter is a large stream, flows into the lake on the eastern side, and the lake communicates with the sea by Keugezi river, which flows out of its southern end, and passes through marsh and swamp.

Fish.—A great quantity of mullet are caught in Keugezi river, and when dried and salted are sent to Rhodes.

Anchorage.—There is good summer anchorage near the islet off Keugezi river mouth, in from 3 to 9 fathoms water, sand and mud. Here vessels load with wood, Indian corn, and wheat, which are brought down the river in boats. Near the islet the depths decrease gradually to the shore.

Kapnia burnu is high and bold, rising steeply to a hill 1,340 feet high, half a mile to the northward; between the cape and Seira burnu, 2 miles eastward, a bay extends $1\frac{1}{2}$ miles to the northward; the water in the bay is deep, and it affords no anchorage.

General charts 236, 2836a, 2606, 2158b, 449.

Chart 1886, Karaghatch to Makri. Var. 1° 40' W.

Dalamon bay lies between Seira burnu and Sphena burnu, $6\frac{1}{2}$ miles east-south-eastward, and it extends $1\frac{3}{4}$ miles north-north-eastward.

Papas islet, one mile eastward of Seira burnu, and 3 cables off-shore, is nearly half a mile long east and west, and narrow; small vessels shelter inside it, but southerly gales send in a heavy swell. On the summit of the island is a large brick pyramid, most probably a tomb, and on the adjacent coast are many ruins, both Hellenic and of the Middle ages. 5

There is no anchorage in Dalamon bay eastward of Papas islet, the shore, though low, being steep-to, with shoal water extending about 2 cables off the north-eastern shore from about $1\frac{1}{2}$ miles eastward of the mouth of Dalamon river. 10

Dalamon river, which is very rapid, flows into the sea $1\frac{1}{2}$ miles eastward of Papas islet; it passes through an extensive plain, which affords pasturage to numerous flocks of sheep and goats. 15

Rothea islet, 2 miles south-westward from Sphena burnu, the eastern extreme of Dalamon bay, is about $1\frac{1}{2}$ cables long north-east and south-west, narrow, 106 feet high, and steep-to. 20

SUVELA BURNU (ancient Artemisium prom.) (*Lat.* $36^{\circ}35'N.$, *Long.* $28^{\circ}54'E.$) is the south extreme of a rugged and bold peninsula which rises to Mount Suvela, a peak 1,650 feet high, $1\frac{1}{2}$ miles northward of the cape; the north-western side of the peninsula is connected to the main by a narrow isthmus; an irregular-shaped neck of land projects about $1\frac{3}{4}$ miles north-eastward from the eastern side of the main part of the peninsula, and on its inner side are several coves, but all too deep for anchorage, excepting Kapi cove, where coasting vessels resort for wood. View A on chart 236. 25

Paximadi islet, about $1\frac{3}{4}$ miles south-westward of Suvela burnu, is small, 86 feet high, steep-to, but the ground between it and the burnu is very uneven and rocky, the depths varying from 19 to 200 fathoms. 30

Iero adasi, close northward of the north-east extreme of Suvela peninsula, is about $1\frac{1}{2}$ miles long north-west and south-east, half a mile broad, and 850 feet high. The passage between the peninsula and island is about 400 feet wide, with 9 fathoms in mid-channel, and safe. A rocky shoal, with 5 fathoms least water, lies about 4 cables south-eastward from the entrance to the passage. 35

Tersaneh adasi, about 2 cables eastward of Iero adasi, is about $1\frac{1}{2}$ miles long north-east and south-west, with a greatest breadth of $1\frac{1}{4}$ miles, and 805 feet high; the channel between the islands has a least depth of 25 fathoms in the fairway, but, the wind being generally 40

General charts 236, 2836a, 2606, 2158b, 449.

Chart 1886, Karaghatch to Makri. Var. 1° 40' W.

baffling, no square-rigged sailing vessel should attempt to pass through. On the summit of the island is a small well-cultivated plain, and a small harbour on the northern side affords good anchorage; there is a village on its shores amongst extensive ruins. Tobacco is grown on the adjoining mainland.

Stavro islands, one mile northward of Tersaneh, with a very deep-water channel between, are a group of islands and rocks. St. Kiriaki island, northward of the group, affords pasturage to a few goats.

SKOPEA BAY.—The coast of the mainland from Suvela peninsula isthmus trends north-eastward $7\frac{3}{4}$ miles, and is much indented. Skopea bay, between it and the above-mentioned islands, is a large extent of water, but it is too deep for anchorage excepting in several creeks where small vessels shelter. Remains of the Middle ages are plentiful in this locality. There is scarcely an island, bay, or creek, without the ruins of some building on it or its shores.

A rocky shoal, with 14 fathoms water, and from 23 to 80 fathoms around, lies $1\frac{1}{4}$ miles west-north-westward of the north extreme of Tersaneh, and a similar shoal with 10 fathoms water and 25 to 44 fathoms around, lies half a mile further north-westward.

An islet, with a group of rocks northward of it, lies nearly in the middle of the bay, $1\frac{1}{2}$ miles northward of Tersaneh.

Kujuk creek (*Lat. 36° 45' N., Long. 28° 59' E.*), in the north extreme of Skopea bay, is small, but its western part is well sheltered; in the outer part a considerable swell rolls in with south-east gales, but not sufficient to endanger a vessel.

Supplies.—Water and live stock can be obtained here in winter, but in summer the streams dry and the inhabitants resort to the mountains.

Iniji river.—A high rugged cape lies 8 cables east-south-eastward of the east extreme of St. Kiriaki island, and Iniji river flows south-westward into a small bay eastward of it. The valley through which the river runs is well cultivated, and on a hill on the north-west side of the valley, about 2 miles within the river mouth, are the ruins of an ancient city, probably Dædala, where numerous tombs, hewn out of the rock and in the Lycian style, are to be seen, besides remains of immense walls, &c.

GULF of MAKRI.—The entrance to this gulf (ancient Glaucus sinus) is between Suvela burnu and Cape Angistro, nearly $8\frac{1}{2}$ miles east-south-eastward; the gulf trends north-eastward about 10 miles, and on its eastern side is a deep bay having in its south-eastern part the harbour of Makri. View A on chart 236.

General charts 236, 2836a, 2606, 2158b, 449.

Chart 1886, Karaghatch to Makri. Var. 1° 40' W.

The coast from Iniji river trends south-eastward $1\frac{1}{2}$ miles and is high cliffs which are steep-to and rise to the hills about a mile inland. The cliffs then turn eastward on the north shore of a small bight, into which a river flows. A moderately high point, with foul ground 5 about a cable off its western and southern sides, separates the bight just mentioned from a bight to the south-eastward, and from the eastern point of this bight the coast becomes low and marshy, and trends south-eastward about $4\frac{1}{2}$ miles to Makri harbour.

A rocky patch, with 14 fathoms water and from 30 to 51 fathoms 10 around, lies half a mile off the coast, and one mile southward of Iniji river mouth.

Avthoki island, half a mile off the point, $2\frac{1}{2}$ miles south-eastward of Iniji river mouth, is rocky and barren, and foul ground extends 2 cables from its south-eastern end. 15

Isabel rock, $1\frac{7}{10}$ miles, 207° true, from the north-western point of Avthoki island, is two small rocky patches with $2\frac{1}{2}$ and 4 fathoms water, extending about a quarter of a mile east and west.

The southern part of Flat hill, which is situated on the western shore of Skopea bay, in line with the north extreme of Tersaneh adasi, 20 271° true, leads northward, and Red peak in line with the middle of Avthoki island, 199° true, leads eastward of the rock.

The rock is surrounded by rocky ground, with depths of from 22 to 61 fathoms.

Kazil islands, $1\frac{1}{2}$ miles south-eastward of Avthoki island, are a 25 rocky group; the southern and largest, which is 530 feet high, supports a few goats, and amongst the cliffs are numbers of pigeons.

A rock, on which the sea generally breaks, lies $2\frac{1}{2}$ cables west-north-westward from the small northern islet of the group. The channel 30 between these islands and Avthoki is clear, but the bottom is rocky and uneven, with two patches of 12 and 20 fathoms water, respectively, and from 34 to 51 fathoms around.

LIGHT.—A light is exhibited, at 105 feet above the sea, from a white stone tower, 41 feet high, on the south point of the southern Kazil island (*Lat. $36^\circ 39'$ N., Long. $29^\circ 6'$ E.*). 35

Anchorage can be obtained inside Kazil islands in from 22 to 29 fathoms, good holding ground, well sheltered from the southward; it is much used by sailing vessels meeting contrary winds when bound southward from the Grecian archipelago.

Supplies can be obtained here from Makri and Levisi towns, and 40 water from the stream on the mainland northward of the islands, particularly in spring and winter.

General charts 236, 2836a, 2606, 2158b, 449.

Plan 1885, Makri harbour. Var. 1° 40' W.

Batraki rocks, $1\frac{3}{4}$ miles east-north-eastward of the southern Kazil island, and half a mile off-shore, are a cluster of rocks a few feet above water and steep-to around; there is a clear channel between the
5 rocks and the shore.

Sunk rock.—Dactylo point, $1\frac{6}{10}$ miles east-south-eastward of the south point of the southern Kazil island, is the north extreme of the peninsula which extends about $1\frac{1}{2}$ miles northward on the western side of Makri harbour, and $4\frac{1}{4}$ cables eastward of the point is Sunk rock,
10 which has 5 feet water; the rock is about $1\frac{1}{2}$ cables off-shore.

MAKRI HARBOUR, in the eastern part of the Gulf of Makri, is landlocked and affords complete shelter. Cavaliere island, which is about 6 cables long north-east and south-west, with a greatest breadth of 2 cables, 110 feet high, and covered with ruins of the Middle
15 ages, lies across the entrance to the harbour, and there is a passage on either side; the south-western is the wider and better, but both are safe and clear. On the eastern side of the harbour the shore is low and marshy, and a bank of mud, which dries in places, extends off it 2 cables in the northern, and 6 cables in the southern part, abreast of the town.

Light.—A light is exhibited from a white iron column on the
20 south-western extreme of Cavaliere island.

Directions.—In entering the harbour pass between the southern Kazil island and Dactylo point, on an east-north-east course; keep Cape Suvela open northward of Dactylo point, until Drepanaki
25 point bears 123° true, or is well open north-eastward of the point half a mile west-north-westward of it, which leads about a cable north-eastward of Sunk rock, when turn south-eastward, and steer through the south-western passage into the harbour. Anchor as convenient in from 7 to 10 fathoms water, stiff mud, keeping on the western shore to
30 avoid the mudbank off the eastern shore.

Merchant vessels usually haul in close to the landing place at the town to take in their cargoes, but the water here is shoaling, owing to the discharge of ballast.

The town (*Lat. $36^\circ 37' N.$, Long. $29^\circ 10' E.$*) is a collection of
35 huts situated on the southern shore of the harbour in the middle of a marsh and surrounded by the ruins of ancient Telmissus; in front of the town is the scala or landing place.

The inhabitants only reside here during winter and autumn, when a considerable trade is carried on, and numerous vessels visit the port.
40 From the end of May to October the place is deserted, it being so unhealthy from the exhalations rising from the surrounding marshes that no one during this period will sleep here for a single night.

Supplies.—During autumn and winter, cattle, sheep, poultry, and bread can be obtained here, and the harbour abounds with fish.

General charts 1886, 236, 2836a, 2606, 2158b, 449.

Plan 1885, Makri harbour. Var. 1° 40' W.

Water is very plentiful during winter, and an abundant supply can be obtained from any of the ravines on the western side of the harbour; there are also several springs of good water behind the town, but the clear water that issues from the rocks near the ancient theatre must not be used, as it is said to be very unwholesome. 5

In summer, water can only be procured in small quantities from a spring close to the shore of a small bay south-south-westward of the south-western end of Cavaliere island.

Chart 1886, Karaghatch to Makri.

10

CAPE ANGISTRO.—The coast from Dactylo point to Cape Angistro, 7 miles south-south-westward, forms two bays, separated by a large projection 1,700 feet high, and it is bold and clear. Cape Angistro is the western extreme of a peninsula, the south coast of which trends eastward $2\frac{1}{2}$ miles. View A on chart 236. Karazora island, 15
 $1\frac{1}{2}$ cables south-eastward of the eastern extreme of the peninsula, and St. Nikolo island, about three-quarters of a mile eastward of the northern end of the east coast of the peninsula, are covered with ruins. Rocky foul ground extends between the south-east point of the peninsula and the south point of Karazora island. In the channel, which 20
trends east and west, and is about a cable wide, between St. Nikolo and the main, there is good shelter for small vessels.

Levisi bay, half a mile north-eastward of St. Nikolo island, extends northward about 6 cables, with a width of about 3 cables; foul ground extends off its eastern shore, and it is open to the southward. 25

Simbalu cove (*Lat. 36° 33' N., Long. 29° 10' E.*), nearly $1\frac{1}{2}$ miles to the eastward of St. Nikolo island, is about $2\frac{1}{2}$ cables in extent, and affords secure anchorage in from 15 to 20 fathoms, mud, but the entrance, although easy of access, is only 150 feet wide, with 30
a depth of 19 feet; the cove is much used by small coasting vessels.

The cove is the port of Levisi town, $1\frac{3}{10}$ miles north-north-westward, and situated on the south side of a well-cultivated, elevated plain, which produces good wine and figs. The inhabitants of Levisi are Greeks, the majority being shoemakers, who leave their homes in summer and travel about the country working at their trade until winter. 35

Chart 236, Rhodes island to Kara burnu.

The COAST from Simbalu cove trends generally southward to the north extreme of the Seven capes, a distance of 10 miles, and is lofty and bold, with several creeks in the southern part where small coasting vessels anchor when the sea breeze is very strong. The coast then trends south-eastward $15\frac{1}{2}$ miles to Kalamaki point. 40

General charts 1886, 236, 2836a, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. $1^{\circ} 30' W$.

The Seven capes are the extremities of the spurs from a range of rugged mountains, which attain a height of 3,300 feet, and run parallel and close to the shore for about 7 miles. A sandy beach, with
 5 shoal water extending off about three-quarters of a mile, trends south-eastward from the southern of the Seven capes to Etchen chai (ancient Xanthus), a distance of $4\frac{1}{2}$ miles. At $1\frac{1}{2}$ miles farther south-eastward are the ruins of the ancient city and port of Patara, and $2\frac{1}{2}$ miles south-eastward of Patara is the high Kalamaki point, three-quarters of a
 10 mile southward of which are Volos and Okhendra islands. Views A, B, D, on chart 236.

Kalamaki bay, eastward of Kalamaki point, is about 3 miles wide at its entrance, and extends about the same distance north-eastward; its shores are steep-to, but there are some rocks near the south-
 15 western shore; from the great depth of water in the bay, and its being open to the southward, it is an inconvenient anchorage. Large polaccas, which touch here to complete their cargoes of corn, moor to the shore in the north-east cove; and caiques (small coasters) occasionally haul inside the rocks on the south-west side of the bay.

Jura shoal, about $2\frac{1}{2}$ cables south-south-westward from the eastern entrance point of Kalamaki bay, is about 30 feet long, with
 20 $2\frac{1}{2}$ fathoms water.

The coast from the eastern entrance point of Kalamaki bay trends eastward $10\frac{3}{4}$ miles to the head of Port Vathi, and is high and
 25 rugged.

Phournaki islands, two in number, extend $1\frac{1}{2}$ miles south-westward from close off the coast, $1\frac{1}{2}$ miles eastward of the eastern entrance point of Kalamaki bay.

Prason island (*Lat. $36^{\circ} 10' N$, Long. $29^{\circ} 30' E$*), $1\frac{1}{4}$ miles
 30 south-south-eastward of the southern Phournaki island, is small, and steep-to around.

Rock.—A rock, with $1\frac{1}{4}$ fathoms water, lies about one mile off-shore, 2 miles eastward of the southern Phournaki island. Okhendra island open southward of the southern Phournaki island, 298° true,
 35 leads about half a mile southward of the rock.

St. Georgio island extends $1\frac{3}{4}$ miles eastward from its western end, which is situated $2\frac{1}{4}$ miles south-eastward of Prason island, and has a greatest breadth of three-quarters of a mile; it is steep-to around, and on its southern side is an inlet with deep water, and on the
 40 northern a small bay with a sandy beach; close off the eastern end is the small Tragonera islet.

Shoal.—A shoal with 3 fathoms water is charted $1\frac{1}{4}$ miles, 132° true, from Tragonera islet; its position is doubtful.

General charts 2836a, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 1° 30' W.

Marathi island, about $2\frac{1}{4}$ miles north-eastward from the eastern end of St. Georgio island, is small.

Voutzaki rocks, three-quarters of a mile south-south-eastward of Marathi island, and nearly midway between it and Kastelorizo island, are small and low, but steep-to. 5

Port Vathi lies between the mainland and Vathi peninsula, which is narrow and extends $2\frac{3}{4}$ miles west-south-westward. The harbour is from about $7\frac{1}{2}$ to $2\frac{1}{2}$ cables wide, and there are two small rocks above water in the middle of the entrance, which can be passed on either side at the distance of half a cable; there are depths of from 65 to 5 fathoms in the outer part of the harbour, and from 25 to 7 fathoms in the inner part. The harbour is unsuitable for sailing vessels, but it affords sheltered anchorage to steam vessels. 10

GULF OF KASTELORIZO lies between Kastelorizo island and Vathi peninsula on the west and north, and the mainland on the east; it extends northward about $4\frac{1}{2}$ miles, and several channels lead into it; Vathi channel, lying between the peninsula and Kastelorizo island, is the best. 15

Port Longos (*Lat. 36° 11' N., Long. 29° 40' E.*), on the northern side of the Gulf of Kastelorizo, and $1\frac{1}{2}$ miles eastward from Point Vathi, the western extreme of Vathi peninsula, is an anchorage much used by small vessels. On the southern side of the port is an islet. 20

Port Sevedo, in the north-east corner of the Gulf of Kastelorizo, is more sheltered than Port Longos, but the water is inconveniently deep, and a spit extends about a cable north-eastward from the entrance point. It is easy to enter and affords good shelter. From the head of the harbour a tongue of land projects like a pier, and there are 5 fathoms water close alongside the rocks at its extreme. Vessels either anchor or moor with hawsers to the shore. 25 30

KASTELORIZO ISLAND (ancient Cisthène or Megisté), $1\frac{1}{4}$ miles southward of the western part of Vathi peninsula, is $3\frac{1}{2}$ miles long north-east and south-west, with a greatest breadth of $1\frac{1}{2}$ miles, and 825 feet high. View D on chart 236.

The population of the island is from 6,000 to 7,000, and nearly all the men are sailors. 35

Plan, Kastelorizo roadstead and harbour, on chart 236.

Mandraki harbour, on the north-east side of the island, is a bight extending about 4 cables south-westward, with a width of about one cable, and depths of from 7 to 4 fathoms; small vessels haul close in to the town, on the south-eastern side, and large vessels lie along- 40

General charts 2606, 2158b, 449.

Plan, Kastelorizo roadstead and harbour, on chart 236. Var. $1^{\circ}30'W$. side the shore on the north-western side of the harbour. In entering keep in mid-channel, leaving Psoradia island to the south-eastward.

Eastward of the harbour are several small low islands, which form
 5 a well-sheltered roadstead, about 2 cables long east and west, and a little more than a cable wide, with from 6 to 10 fathoms water, sand, and mud bottom. The entrance to this anchorage is $1\frac{1}{2}$ cables wide, between Polyphidous and Agrielaia islands; there is also a very narrow channel, with 4 fathoms water, close westward of Polyphidous
 10 island.

Between Psoradia and Polyphidous islands, and westward of the channel just mentioned, there are depths of from $2\frac{1}{2}$ to $3\frac{1}{2}$ fathoms, rocky bottom.

Pilots.—Merchant vessels going to or returning from Syria and
 15 Cyprus resort to Mandraki harbour or the roadstead; pilots may therefore be generally obtained here for all parts of the east end of the Mediterranean.

Supplies can be obtained to a moderate extent, but several days previous notice is necessary, as the island is barren, and all the provisions required in the town are brought from the mainland. There are
 20 no springs in the islands, so the inhabitants depend on their reservoirs in summer, and it is difficult to obtain any quantity of water.

Islands and rocks.—There are upwards of 20 rocks and islands of various sizes, some high and others just above water, in the Gulf of
 25 Kastelorizo, which may all be approached to about a cable, except Prassoudi (*Lat. $36^{\circ}9'N$, Long. $29^{\circ}40'E$*), a small round island, lying $5\frac{1}{2}$ cables eastward of Agrielaia island, from which a reef extends about a cable north-eastward; and $1\frac{1}{2}$ cables south-eastward from Prassoudi there is a patch of sunken rocks about 40 yards in extent, with
 30 $1\frac{3}{4}$ fathoms water: By the plan, the castle, on the red cliffs eastward of the town, open southward of Poinaki island, 283° true, leads nearly a cable southward of the patch of sunken rocks, and the south extremes of Polyphidous and Strongylo islands in line, 262° true, lead about a cable northward of the reef extending north-eastward from Prassoudi island.
 35

Vessels should not pass between the sunken rocks and Prassoudi island on account of the currents, which are uncertain both in rate and direction.

Chart 236, Rhodes island to Kara burnu.

40 **The coast** from a point, one mile south-westward of the entrance point of Port Sevedo, trends south-eastward $3\frac{3}{4}$ miles to Tugh burnu.

Hypsili island, lying about $2\frac{1}{4}$ miles west-south-westward of Tugh burnu, and in the entrance to the Gulf of Kastelorizo, is about

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. $1^{\circ} 30'$ W.

a mile long north-east and south-west, with a greatest breadth of 4 cables, 600 feet high, and steep-to; there are several islets between it and the main.

LIGHT.—A light is exhibited at 289 feet above the sea, from a white masonry tower, 33 feet high, on the south-western point of Hypsili island. 5

Current.—The current setting westward on the coast of Karmania (page 11), generally divides at Tugh burnu, one part continuing westward and passing southward of Kastelorizo island, while the other goes through the gulf and out of Vathi channel, at the rate of from one-half to $1\frac{1}{2}$ miles an hour. Sometimes the whole current sets westward, when part of it appears to pass southward and westward of Kastelorizo island, eastward through Vathi channel, and then southward to the original current, which it joins. 10 15

The coast from Tugh burnu trends east-north-eastward 5 miles to the head of Assar bay; it appears to be steep-to, but has only been partially examined.

Kar boghaz, 4 miles eastward of Tugh burnu, is the channel between an island and the western extreme of a peninsula; although narrow, it is navigable, but a strong eddy current has been noticed setting south-eastward through it, and the winds are baffling. The peninsula, which has a greatest breadth of about three-quarters of a mile, trends east-north-eastward $3\frac{3}{4}$ miles, and is connected to the shore by an isthmus, on the western side of which is Assar bay and on the eastern Polemos bay. View E, on chart 236. 20 25

Kakava island trends east-north-eastward $4\frac{1}{4}$ miles from half a mile eastward of the peninsula above mentioned; it has a greatest breadth of about a mile, and is 800 feet high. Three islets lie within 8 cables southward of the island, and Tragonesi islet (*Lat. $36^{\circ} 10'$ N., Long. $29^{\circ} 58'$ E.*), is on its south-eastern side. 30

Plan, S.W. entrance into Kakava roadstead, on chart 236.

KAKAVA ROAD.—Between the peninsula just mentioned and Kakava island, is the entrance into Kakava road. Karaööl (Sentinels), a group of small islands, divides the entrance into two channels, each about $1\frac{1}{4}$ cables wide, with depths of from 16 to 34 fathoms in the fairway, but only a few soundings have been taken; the pilots prefer the eastern one, as they consider that the wind is more steady in it. 35 40

A rock, on which the sea often breaks, lies one cable north-north-eastward from the west extreme of Kakava island; it is about 30 yards in extent, and has 4 feet water. The west extreme of Kakava island bearing eastward of 173° true leads westward, and the north extreme of Karaööl islands bearing southward of 258° true leads northward of the rock. 45

General charts 236, 2606, 2158b, 449.

Plan, Kakava roadstead, on chart 236. Var. 1° 30' W.

Kakava roadstead is about $1\frac{1}{2}$ miles north-eastward of the west end of Kakava island, and it affords anchorage in from 4 to 23 fathoms.

- 5 The most convenient berth for large vessels is south-eastward of an old castle on a hill, 300 feet high, situated on the mainland, the holding ground is generally good. Rocks, some of which are above water, extend $1\frac{1}{2}$ cables off-shore to the southward of the castle, and there is also a small patch of sunken rocks about half a cable off the south-
10 west point of an islet on the eastern side of the road, and 6 cables eastward of the castle.

The entrance to Kakava road from the eastward is straight and clear beyond the distance of half a cable from the shore on either side; there is generally a slight westerly current in it.

- 15 **Tristomos harbour**, the entrance to which is about half a mile westward of the castle, is nearly 2 miles long east-north-east and west-south-west, about a quarter of a mile broad, with depths of from 2 to 5 fathoms, and landlocked. There are several small islands and rocks in the entrance, and the inner island divides it into two narrow
20 channels, in which there appear to be depths of $3\frac{1}{2}$ and 4 fathoms, but neither have been closely examined.

Chart 236, Rhodes island to Kara burnu.

Polemos bay, on the northern side of the peninsula westward of Kakava island, affords anchorage for small vessels.

- 25 **Port St. Stephanos** is a small bight on the south-east coast of Kakava island, with some islets off the entrance.

Plan, Yali bay, on chart 236.

- St. Elias island** (Lat. $36^{\circ} 11' N.$, Long. $29^{\circ} 57' E.$), about one mile north-westward of the east extreme of Kakava island, and
30 70 yards eastward of the mainland, is about $1\frac{1}{2}$ cables in extent, and 166 feet high; there is an islet, 72 feet high, at its northern end.

Martinis bank, one cable southward of St. Elias island, is small, and above water.

- 35 **Ashilada**, about $1\frac{3}{4}$ cables northward of St. Elias island, is about half a mile long east and west, 3 cables broad, and 279 feet high.

- YALI BAY**, within St. Elias island and Ashilada, is surrounded by precipitous rugged mountains covered with low bushes; it affords anchorage for vessels of light draught, but the holding ground is not good and a vessel should moor for a long stay. The entrance north-
40 ward of Ashilada has a least width of about 80 yards, with a depth of $4\frac{1}{4}$ fathoms in the fairway; it leads direct to the anchorage, and is better than the channel southward of the island. Keep the

General charts 236, 2606, 2158b, 449.

Plan, Yali bay, on chart 236. Var. 1° 30' W.

southern shore aboard to clear a patch of rocks extending from the north shore nearly to mid-channel abreast the middle of Ashilada.

Winds.—Land and fresh sea breezes prevail during spring and well into summer; during this period north-east winds are rare, of short duration, and accompanied by excessive heat. 5

Supplies.—Meat can be procured only during winter; water is scarce; there are some indifferent springs in Tristomos harbour. No refreshments can be procured without sending into the interior, to Myra, or to the villages up Andraki river. 10

Chart 236, Rhodes island to Kara burnu.

Andraki river.—Andraki point, about 2 miles east-north-eastward from the eastern extreme of Ashilada, is the eastern entrance point of a bay extending $1\frac{1}{4}$ miles northward. Andraki river, the mouth of which is inside the point, is very brackish in summer and has a shoal bar, passable only by boats of very light draught. 15

Pyrgo point, 2 miles eastward of Andraki point, is the east extreme of a sandy and shallow bay; there is a ruined castle on the point. View E on chart 236. A steep gravel beach extends 5 miles east-north-eastward from the point, and there is a narrow entrance between its eastern end and the coast of Phineka promontory into a large brackish lake; in the entrance there is a depth of 3 feet water, and for some distance inside depths of $1\frac{1}{2}$ fathoms. 20

A river (ancient Limyrus) flows into the head of the lake.

Cape Phineka (*Lat. 36° 14' N., Long. 30° 11' E.*) is the south extreme of a bold promontory, about 4,800 feet high; the mountains farther inland are covered with snow. 25

Yeronda creek, on the eastern side of the promontory, is an inlet which extends three-quarters of a mile northward, with a width of half a mile, and depths of from 29 to 7 fathoms; it is open to southerly winds. The eastern side of the inlet is a bold projection extending about one mile southward, and close south-eastward of its extreme is an islet 34 feet high, with a channel between for small craft. On the east coast and about $1\frac{3}{4}$ miles northward of the extreme of this projection, is the old castle of Phineka, near which two rivers flow into the sea. 30 35

Anchorage.—The silt from these rivers has made a convenient bank for summer anchorage south-eastward of the castle. Anchor in a depth of 7 fathoms, which is sufficiently near the rivers for the purpose of obtaining wood and water, and leaves room to weigh if the wind should freshen from seaward. 40

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 1° 30' W.

Water.—The eastern of the two rivers near the castle is the better for watering, and, when there is no surf, boats can pass over the bar with their casks full; the water is good.

- 5 **PHINEKA BAY** lies between Phineka promontory and Cape Khelidonia; its north shore trends east-north-eastward $2\frac{1}{2}$ miles from Phineka castle, and then east-south-eastward 9 miles to the north entrance point of a small bay, and is low and sandy to near the point, where there are white rock cliffs which show like a castle. The
10 entrance to the small bay is $1\frac{3}{4}$ miles wide north-west and south-east, and the bay extends $1\frac{1}{2}$ miles north-eastward, with general depths of from 20 to 7 fathoms; anchorage can be obtained in the southern part, sheltered, excepting from the westward.

- 15 **CAPE KHELIDONIA.**—The coast from the southern point of the small bay just mentioned trends southward 2 miles to Cape Khelidonia, which is the extreme of a mountainous promontory, and steep-to. Views C and E on chart 236.

- Khelidonia isles.**—About half a mile southward of Cape Khelidonia, with deep water between, is an island (*Lat. 36° 11' N.,*
20 *Long. 30° 27' E.*), 3 cables in extent, and 2 cables further southward is an island about one mile long north and south, with a greatest breadth of 4 cables, and 480 feet high; an islet lies close off its north-eastern side. South islet lies 2 cables southward, and South-east islet one mile east-south-eastward of the south point of the last-mentioned
25 island. There are some creeks, available for small craft, in the large island. The islands are steep-to, except South-east islet, from which a reef extends nearly a cable eastward. The passages between the islands and between them and the cape are navigable.

- Current.**—The current off Cape Khelidonia generally sets westward at a rate of from one to 2 miles an hour, but it appears to be
30 very uncertain. It has been observed to set south-eastward at the rate of nearly 3 miles an hour, and on the following day at the rate of about one mile, although there had been no change in the wind, weather, or swell for several preceding days.

- 35 **GULF OF ADALIA.**—Cape Anamur lies 118 miles eastward of Cape Khelidonia, and the Gulf of Adalia extends 42 miles northward between them.

- Winds.**—Off the west shore of the Gulf of Adalia, north-eastward of Cape Khelidonia, the sea breeze, which is generally a west or
40 south-west wind during summer, becomes a northerly wind. Towards the head of the gulf it shifts to north-west and west, and sometimes to south-west.

General charts 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 1° 15' W.

The coast from Cape Khelidonia trends north-eastward 6 miles, and then northward $1\frac{1}{4}$ miles to the south entrance point of Adrat-chan bay. It is generally steep-to, but there are a few rocks close to it. 5

Grambúsa island (ancient Crambúsa), $3\frac{3}{4}$ miles east-north-eastward of Cape Khelidonia, is three-quarters of a mile long north-west and south-east, with a greatest breadth of a quarter of a mile, high, and rugged; though a nearly bare rock, there is a good spring of water on it, and it is therefore visited by small coasting vessels. 10
There is anchorage between the island and the main in 28 fathoms, coarse ground, but the bottom is generally rocky.

There is a natural archway through the island, which can be used by boats, but there is a strongly westerly current in it.

Adratchan bay (*Lat. 36° 18' N., Long. 30° 32' E.*), the entrance to which is one mile wide, is open to the eastward, but affords a little shelter to small vessels in a cove inside the southern point of the bay 15

Adratchan point lies $2\frac{1}{2}$ miles east-north-eastward of the northern point of Adrat-chan bay, and there is a barren islet close off it; the water in the channel between the point and islet is deep, but it should not be used by sailing vessels, as the current is uncertain. 20

The coast from Adrat-chan point trends north-westward about 2 miles to a T-shaped peninsula of high white cliffs, and there is a cove on each side of the isthmus connecting it to the mainland.

Mount Adrat-chan, a mile south-westward of the peninsula, is about 3,300 feet high. View C on chart 236. 25

Plan, Port Genovese, on chart 236.

Port Genovese, on the northern side of the isthmus, extends southward 2 cables, and its width is about the same, the depths being from 18 to 4 fathoms, good holding ground. There are three small rocks above water, close together and steep-to, in the middle of the entrance. The head of the bay is a beach; a northerly wind would send in some swell, and heavy westerly squalls come down from Mount Adrat-chan; some water can be procured, and scattered trees on the adjacent hills can be cut. View on chart 236. 30 35

Chart 236, Rhodes island to Kara burnu.

Chiralu bay extends northward $1\frac{3}{4}$ miles from its southern point, which is situated about $1\frac{1}{4}$ miles north-westward of Port Genovese; on the south-western shore of the bay is Deliktash village, where are the ruins of the ancient city of Olynpus, and Yanar volcano, on the side of a woody hill, inshore of the northern part, is small, but emits a bright and constant flame that may be seen from some distance. 40

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 1° 10' W.

The coast from the north point of Chiralu bay trends north-north-eastward 4 miles, and is a succession of small bays, with a rivulet of good water in each. The coast is a
 5 black crumbly rock, which yields to the action of the sea, and from every point formed of it an irregular reef projects from one to 2 cables; the fragments are rounded by the surf, and the beaches are generally covered with them. The coast from the north-eastern of the small bays trends north-eastward $2\frac{1}{4}$ miles to a point,
 10 and is a sandy beach. Tekróva peninsula is three-quarters of a mile further north-eastward.

A small bay immediately northward of Chiralu bay is encumbered with rocks.

Triánesia (*Lat. 36° 27' N., Long. 30° 37' E.*), a group of three
 15 small low islands, lie $3\frac{1}{2}$ miles north-eastward from the northern point of Chiralu bay and $1\frac{1}{2}$ miles off-shore. There is anchorage around the islands in from 18 to 30 fathoms water; in the eastern island is a cove, and small vessels sometimes warp in. A reef extends about $1\frac{1}{2}$ cables north-north-eastward from the eastern island, and a small patch of
 20 rocks lies about the same distance eastward from the cove.

Plan, Tekróva, on chart 236.

Tekróva (ancient Phaselis) is the ruins of a town on a small peninsula, which has on either side the remains of an artificial port. There is anchorage on clean ground abreast of the peninsula.

25 *Chart 236, Rhodes island to Kara burnu.*

The land from Tekróva rises gradually to Mount Tákhtalu (ancient Solyma), 7,800 feet high, which is situated $5\frac{1}{2}$ miles to the westward. View C on chart 236.

The coast from Tekróva trends north-eastward $4\frac{1}{2}$ miles to Cape
 30 Avova, and is a gravel beach, through which two rivers, with good water, flow into the sea.

Cape Avova is a bold cliff of white rock, rising to a hill 990 feet high, one mile south-westward; at its southern point is a creek in which small coasters shelter, and in the middle of the cape is a deep
 35 cave, which could be entered by several boats.

Water.—On the northern side of the cape a rivulet of good water flows into a small bay.

Reef.—About $1\frac{1}{2}$ miles north-north-westward from Cape Avova is a large patch of rocks nearly awash, on which the swell generally
 40 breaks. Adratchan point open eastward of Cape Avova, 193° true, leads about one mile eastward of the reef.

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 1° 0' W.

The coast from Cape Avova trends northward 12 miles to abreast Rashat isle, and high ranges of mountains run parallel to it, from 3 to 4 miles inland, spurs from which descend to the sea. There are some suspicious overfalls about $4\frac{1}{2}$ miles south of the isle, where shoal water might exist. 5

Rashat isle, about a quarter of a mile in extent and 360 feet high, is separated by a narrow channel from the mainland, and a shoal bank extending off the coast leaves but a small space available for anchorage. The bottom is sandy, there is no room to veer, and the isle is so small that it could hardly break a heavy swell, yet to a vessel embayed in the gulf the shelter here might be valuable. The isle is steep to on all sides, and a vessel, by hauling close round, might bring up under its lee or perhaps secure to the rocks, providing against the eddy winds from the mountains. Should the wind suddenly change, either passage is clear. 10 15

The coast from abreast Rashat isle trends north-eastward $6\frac{1}{2}$ miles, the last $5\frac{1}{2}$ miles being a steep gravel beach; it then turns eastward about one mile to Adalia.

Plan, Adalia, on chart 236. 20

ADALIA (ancient Olbia) (*Lat. 36° 52' N., Long. 30° 46' E.*) is a little harbour, but the space in it clear of rocks is too small for general use.

The ruins of the south pier above water resemble the walls of a ruined castle, rising to a considerable height; the quays are also in a ruinous condition. 25

Adalia, population 29,425, is the largest town in the gulf, and is the residence of the Pasha of the province. It is situated around the harbour, and is surrounded by an ancient ditch and a rampart with numerous towers. The country in the vicinity is fertile, extensively cultivated, and well watered. A considerable portion of the inhabitants are Greeks, but the Turkish language is universally spoken. 30

Supplies.—Water is supplied free from the Custom-house quay, and other refreshments can be procured; vegetables and meat are plentiful, but bread is inferior. Fruit can be procured in season, and game—wild boar, ilex, goats, woodcock, partridge, francolin, snipe, and hares—is plentiful in winter. There is a bazaar, which displays many articles of European manufacture. 35

Coal.—No coal is kept in stock.

Communication.—There is telegraphic communication with Smyrna. 40

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. $0^{\circ} 50'$ W.

Outer anchorage.—The anchorage off Adalia is unsafe in winter, but in summer, it is very good in from 15 to 20 fathoms water.

- 5 **LIGHT.**—A light is exhibited, at 131 feet above the sea, from a lighthouse situated on the coast about 6 cables south-eastward of Adalia harbour.

The coast from the lighthouse (*Lat. $36^{\circ} 52'$ N., Long. $30^{\circ} 47'$ E.*) trends south-eastward 3 miles to a point with overhanging cliffs, and
10 a short distance from the lighthouse several streams fall from the cliffs into the sea; they are used for turning mills, but the water is not suitable for domestic purposes as it contains a calcareous sediment.

Plan, Laara, on chart 236.

- 15 The coast from the overhanging cliffs turns eastward, and at a distance of $1\frac{3}{4}$ miles are the remains of the artificial harbour of Laara, but of the town to which it belonged, ancient Attalia, there are few vestiges.

Chart 236, Rhodes island to Kara burnu.

- 20 The coast from Laara trends eastward 26 miles, and then turns east-south-eastward 4 miles to Eski Adalia; it is low and sandy, and several rivers flow through into the sea. Of these, the ancient Cestrus and Eurymedon (the modern names have not been ascertained), about 4 and 17 miles, respectively, eastward of Laara, are large, and inside
25 the bars they are deep, but small boats can only enter with difficulty. Low sandhills, in some places bare and in others covered with bushes, stretch along the beach, and a broad irregular plain extends thence to the foot of the mountains.

- Reef.**—A rocky reef extends about $1\frac{1}{2}$ miles off-shore, 4 miles east-
30 ward of the mouth of the Eurymedon; there may be other rocks outside the reef. A river flows into the sea near the eastern part of the reef, and hills approach its mouth.

Caution.—The low sandy coast between Laara and Eski Adalia must be approached with caution, as it has not been closely examined.

- 35 *Plan, Eski Adalia, on chart 236.*

Eski Adalia (ancient Sidè), as it is erroneously called by the Turks, is situated on a point projecting about half a mile west-south-westward from the coastline.

- The harbours are now filled up, but numerous ruins, particularly
40 an enormous theatre, are in good preservation; there is no fresh water, and therefore no inhabitants.

Chart 236, Rhodes island to Kara burnu.

The coast from Eski Adalia trends east-south-eastward 16 miles to Kara burnu, and is low and sandy; several rapid rivers flow through

General charts 236, 2606, 2158b, 449.

Chart 236, Rhodes island to Kara burnu. Var. 0° 40' W.

it into the sea. Rocks and shoal water extend about half a mile off it in places.

Manavgat river (ancient Melas) enters the sea about 6 miles east-south-eastward of Eski Adalia; on the bar there is a depth of 3 feet; just within the entrance it is 550 feet wide, and there is a depth of 12 feet, increasing to 21 feet, further up. On the right bank, about 3 miles from the entrance, is Manavgat kalessi (castle), and here the river is about 120 feet wide and 13 feet deep. The muddy water from the river extends several miles seaward.

There is a large and noticeable gap in the mountains, through which the river passes.

Kara burnu (*Lat. 36° 38' N., Long. 31° 44' E.*) is a cliff covered with dark trees; a small island lies close off a small point about half a mile westward of it, and there are a number of rocks around. View on chart 237.

Chart 237, Kara burnu to Karadash burnu.

The coast from Kara burnu trends east-south-eastward 16½ miles to Kiloarda burnu, and is bordered by rocks in places; the rocks extend nearly a mile off the coast, about 7 miles from Kara burnu. The coast should therefore be approached with caution. There is occasional anchorage for coasters.

Plan, Ptolemaïs, on chart 237.

Ptolemaïs.—About 5 miles from Kara burnu a point projects about half a mile south-westward from the coastline; it is the supposed site of the ancient Ptolemaïs, but the long pier that formed its harbour is now sunken. Off the point there are patches of rocks, and the soundings are irregular.

Plan, Alaya, on chart 237.

Kiloarda burnu is the south-west point of a promontory which projects about a mile southward from the coastline. The promontory is about half a mile broad, and 780 feet high; its cliffs, of a dark reddish colour, on the west and south sides are 600 and 500 feet high, respectively. A high ridge of rocks extends about a quarter of a mile south-westward from the cape.

LIGHT.—A light is exhibited, at 393 feet above the sea, from a tower on the south-western side of the old fort at Kiloarda burnu.

Alaya anchorage.—There is tolerably good anchorage in the road eastward of the promontory, with the Octagon tower, on the north side of the town, bearing 270° true, distant 3 cables, in 6 fathoms water. Small vessels go close in to the landing place, which is a rough stony beach immediately south of the above tower. As the bottom in the road is loose sand on which, as holding ground, little reliance can

General charts 237, 2606, 2158b, 449.

Plan, Alaya, on chart 237. Var. $0^{\circ} 30'$ W.

be placed, and a heavy surf rolls in during and after southerly winds, the anchorage must be used with caution, especially in winter.

Alaya (ancient Coracesium).—The town of Alaya stands on the eastern side of the promontory, which is a rocky steep declivity, the houses being built in terraces one above another. Views on chart 237. The Pasha of the province resides here. The population of the town was 1,500 in 1880. There is telegraphic communication with Konia. Wood (pine and walnut) and liquorice are largely exported.

Alaya has neither harbour nor pier.

Supplies.—Small bullocks and vegetables can be obtained here.

Chart 237, Kara burnu to Karadash burnu.

The COAST from Alaya trends south-eastward 21 miles to Silinti, and then in the same direction $14\frac{1}{2}$ miles to Nephelis, whence it turns east-south-eastward $15\frac{1}{2}$ miles to Cape Anamur. It is generally high and bold, having but few bays and no harbours. A peak, 4,800 feet high, situated $8\frac{1}{2}$ miles eastward of Kiloarda burnu and 4 miles inland, is a good mark. View on chart 237.

Plan, Hamaxia, on chart 237.

Hamaxia.—The ruins of this ancient town are situated on a promontory which extends about one cable southward from the coast-line, 17 miles south-eastward of Alaya. The cliffs of the promontory are 138 feet high.

Plan, Silinti, on chart 237.

Silinti (ancient Trajanopolis), the ruins of which are situated near the mouth of a shallow stream, 4 miles south-eastward of Hamaxia, contains the mausoleum of the Emperor Trajan, a very large structure surrounded by one hundred and ten columns.

The cliffs southward of the river mouth are 585 feet high.

Chart 237, Kara burnu to Karadash burnu.

Antiochia (probably the ancient Antiochia of Cragus), 9 miles south-eastward of Silinti, are extensive ruins.

Melisse is a small bight $6\frac{1}{2}$ miles westward of Cape Anamur. An iron pier extends from its shore, and three red buoys are moored off it.

Plan, Cape Anamur, on chart 237.

CAPE ANAMUR (ancient Anemurium) (*Lat. $36^{\circ} 1'$ N., Long. $32^{\circ} 51'$ E.*) is bold, steep-to, and the western bluff is 500 feet high; vestiges of the old city cover the cape and vicinity.

LIGHT.—A light is exhibited, at 223 feet above the sea, from a white masonry tower, 33 feet high, on the southern extreme of Cape Anamur.

General charts 237, 2606, 2158b, 449.

Plan, Cape Anamur, on chart 237. Var. 0° 20' W.

Anchorage.—There is good anchorage for coasters on the eastern side of the cape during the fresh westerly sea breeze. View on chart 237.

Supplies.—On the adjoining plain are several villages whence cattle might be procured. 5

Chart 237, Kara burnu to Karadash burnu.

The coast from Cape Anamur trends north-eastward about 6 miles, and is a sandy beach, to a point on which is a village and the large old Anamur castle, view on chart 237; water can be obtained in the mouth of Direk Ondessi river, half a mile westward of the castle. The coast then turns eastward and south-eastward $9\frac{1}{2}$ miles to Kizliman burnu; it becomes higher, and from about 4 miles from the castle is much indented with several little bays, which might afford shelter to small vessels. 15

Softa kalessi is situated on a hill, 660 feet high, about 6 miles eastward from Anamur castle, and on the coast below it are the ruins of a pier and town, probably the ancient Arsinoe.

Kizliman burnu is the extreme of a peninsula, projecting about one mile southward, 3 cables broad, 500 feet high, and bold-to. 20

The coast from Kizliman burnu trends north-north-eastward about 4 miles, and then turns eastward $8\frac{1}{4}$ miles to Port Melania; it appears to be high and fairly steep-to, but rocks and shoal water extend nearly half a mile off it for about $4\frac{1}{2}$ miles eastward from 4 miles north-eastward of the cape. 25

A bare rock lies 51° true, $4\frac{1}{2}$ miles from Kizliman burnu, and $1\frac{1}{4}$ miles off-shore; it is small and 50 feet high.

Plan, Port Melania, on chart 237.

Port Melania (Lat. $36^\circ 8' N.$, Long. $33^\circ 19' E.$) is small and deserted; it is open to south and south-east winds, but coasting vessels can obtain shelter in it. 30

Chart 237, Kara burnu to Karadash burnu.

The coast from Port Melania trends east-north-eastward 2 miles to Port Chelindreh, and appears to be high and fairly steep-to.

Plan, Port Chelindreh, on chart 237. 35

Port Chelindreh (ancient Celenderis) is a very small but secure harbour, with from $2\frac{1}{2}$ to one fathom water. There are a ruined fortress and a large tower on the point on its eastern side, and a few miserable huts on shore near the head.

Chart 237, Kara burnu to Karadash burnu. 40

The coast.—A point lies nearly 4 miles east-south-eastward from Port Chelindreh, and the coast between forms two large bays and some smaller ones.

General charts 237, 2606, 2158b, 449.

Chart 237, Kara burnu to Karadash burnu. Var. 0° 20' W.

Two islets, one of which is 114 feet high, lie one mile south-eastward of Port Chelindreh. A bare rock, 96 feet high, lies one mile south-westward of the point just mentioned.

- 5 The coast between the point south-eastward of Port Chelindreh and Cape Cavalière, 13 miles eastward, is divided into two large bays by a promontory; it contains several deep creeks and inlets, which could be entered by vessels of moderate size, but none afford shelter from south-westers.

- 10 *Plan, Papadula islands, on chart 237.*

Papadula islands, two in number, lie half a mile south-westward of the promontory just mentioned. The islands, which are separated by a narrow, rocky channel, extend half a mile north-west and south-east; the southern and larger is 3 cables broad in its south

- 15 part, and 342 feet high.

Chart 237, Kara burnu to Karadash burnu.

The south-east point of the promontory is probably the ancient Aphrodisias.

- Cape Cavalière** (*Lat. 36° 8' N., Long. 33° 42' E.*) is the south
20 extreme of a peninsula, about $1\frac{1}{4}$ miles in extent, and 738 feet high, connected to the main by a low and narrow isthmus, which forms a small bay on either side, the one on the western side being shoal and foul.

Plan, Cavalière island and port, on chart 237.

- 25 **Port Cavalière**, the bay on the eastern side of the isthmus, is a good anchorage, which is much frequented by vessels beating to the westward. The anchorage is divided into two parts by Cavalière island, which is $3\frac{3}{4}$ cables long east and west, and narrow. A good
30 position is in the northern part, with the north-east point of the island bearing 162° true, distant 2 cables, in about 18 fathoms water.

Chart 237, Kara burnu to Karadash burnu.

The coast from Port Cavalière trends north-eastward 14 miles, and is high and steep; it then turns south-eastward and southward 7 miles to Bagasse, and is low sandhills.

- 35 *Plan, Provençal or Manavat island, on chart 237.*

- Provençal island**, $3\frac{1}{2}$ miles north-eastward of Cavalière island, called Manavat by the Turks, but better known by the name of Provençal, is $1\frac{3}{4}$ miles long north-east and south-west, 7 cables broad, and 900 feet high near the south-western end; on the north-
40 western side are an immense number of ruins. The channel, between the island and the main, $1\frac{1}{4}$ miles broad, is a good road, with shelter in all weathers, and a ready egress with all winds. A good position

General charts 237, 2606, 2158b, 449.

Plan, Provençal or Manavat island, on chart 237. Var. 0° 15' W.

for anchorage is with the extremes of the island bearing 183° and 80° true, in 17 fathoms, mud bottom; nearer the island there are some patches of rough ground.

Rock.—There is a rock, awash, half a mile west-south-westward of the south-west point of the island; it is nearly a cable long north-east and south-west and half a cable broad, with deep water less than a cable around. 5

Plan, Aghaliman ports, on charts 237.

Aghaliman (Lat. 36° 17' N., Long. 33° 51' W.).—On the north-western shore of the deep bight, which extends 8½ miles north-eastward of Provençal island, there are several small bays; of these Aghaliman, on the north-western side of Aghaliman burnu, the extreme of a peninsula which juts out about 7 cables from the coastline, is a good harbour for coasters, and large vessels could obtain some shelter in the bays on each side of the little peninsula. A small ruined fort stands on the western shore of the harbour, and there is a Turkish village inside the walls, which is occupied only during winter, the inhabitants retiring in summer to the mountains to avoid the heat and cultivate their farms; the fort is conspicuous. Aghaliman is the scala for Selefkeh town, which is situated about 9 miles north-eastward by the road. 10 15 20

Chart 237, Kara burnu to Karadash burnu.

Shoals.—Within about 1¼ miles of the coast trending south-eastward and southward to Bagasse are numerous overfalls and shifting banks, which should not be approached. 25

BAGASSE (Lissan el Kahbeh of the Turks) (possibly the ancient Zephyrium promontory), is the extremity of a long projecting point of low sand, off which an irregular shoal spit extends nearly a mile to the southward, and three-quarters of a mile further southward is a sand patch, with 4½ fathoms water. The southern end of Provençal island, bearing 273° true, leads about 1½ miles southward of the patch. 30

LIGHT.—Lights are exhibited from a mast surmounting a small white house, about 1,400 yards north-eastward of the extremity of Bagasse. The lighthouse is not very noticeable. 35

Caution.—Bagasse has not been examined since the survey in 1812, and it is probable that the spit, together with the adjacent shoals, may be extending. It is reported that the coast here is laid down on the chart 2 miles too far to the northward; also that at 6½ miles from the spit there is no bottom at 100 fathoms, although the water may be discoloured. Great caution must, therefore, be exercised when in this locality. 40

General charts 237, 2606, 2158b, 449.

Chart 237, Kara burnu to Karadash burnu. Var. 0° 10' W.

The coast from Bagasse (*Lat. 36° 14' N., Long. 33° 58' E.*) trends north-eastward 10 miles to a point where the Ghiuk-suyu flows into the sea; it is low sandhills covered with shrubs, and there
5 appears to be deep water at the distance of about half a mile from it.

Ghiuk-suyu (ancient Calycadnus) issues from its mouth with a strong current, which sets eastward 2 miles and then turns sharply south-westward, in which direction its muddy course is marked by a
10 curved and well-defined line; at its entrance the river is 200 feet wide, and inside the bar there is a depth of 18 feet. This river was formerly navigable to what is now Selefkeh town (ancient Seleucia), but at present its mouth is closed by a shallow bar.

The points of the beach which form the river's mouth are steep-to,
15 and there are no off-lying banks, so it can be closely approached.

Anchorage can be obtained about half a mile southward of the mouth of Ghiuk-suyu in 15 fathoms water.

The coast from the mouth of Ghiuk-suyu trends northward, and is low sandhills, 5 miles to Pershendi, where there are exten-
20 sive ruins. Thence it trends north-eastward 11 miles to Lamas, and is indented by many creeks and inlets, but there are no harbours or sheltered roads, though the numerous ruins and towers attest its ancient population and importance.

Plan, Korghos-Kalaler, on chart 237.

Korghos castles.—At Korghos, 3 miles north-eastward of Pershendi, there are two castles; the northern and larger is on the main, and is much ruined, the other nearly covers a small island on which it is built; they are very conspicuous. Plans on chart 237.
25

Plan, Ayash, on chart 237.

Ayash, the site of the ancient island and important city of Eleusa, 1½ miles north-eastward of the northern Korghos castle, is now a collection of huts, and the coast in the vicinity presents a succession of ruins, amongst which the aqueduct, 6 miles long, extending from Eleusa to Lamas river is most remarkable.
30

Chart 237, Kara burnu to Karadash burnu.

Lamas river is very good for watering, as the boats are able to enter it and return over the bar when loaded. Lamas, a small village, is on the right bank at the entrance.

The coast from Lamas river trends north-eastward 17 miles to
40 Mezetlu, and thence in the same direction 4 miles to Mersina. North-eastward of the river the coast rises in a gradual slope to a range of

General charts 237, 2606, 2158b, 449.

Chart 237, Kara burnu to Karadash burnu. Var. $0^{\circ} 10' W$.

mountains from 5 to 8 miles inland, and several rivers, whence good water can be obtained, flow through it into the sea.

Plan, Mezetlu, on chart 237.

Mezetlu (ancient Soli or Pompeiopolis) is situated on a small projection of the coast. Numerous vestiges of the ancient city still remain, including the masonry piers of the ancient port, which is now filled with sand.

Plan 2668, Mersina roadstead.

MERSINA.—LIGHT.—A light is exhibited, at 53 feet above high water, from a white stone tower, situated on a point about a mile south-westward of the town.

Anchorage.—The port of Mersina is only an open roadstead, south-eastward of the coast between the lighthouse and the north-eastern part of the town; shoal water of less than 3 fathoms extends from $2\frac{1}{2}$ to 5 cables off this coast. The best anchorage is about one mile off-shore in 6 fathoms water, stiff mud bottom, with the lighthouse bearing about 270° true, distant $1\frac{1}{4}$ miles, and the dome of the Greek church about 310° true.

The anchorage is open to winds between south-west and east-south-east, but the holding ground is good, and vessels with good anchors and gear, and sufficient cable out, should be safe in any weather.

A considerable number of lighters, which are moored half a mile off-shore, break adrift and go ashore in the winter gales.

The sea is enough to be unpleasant for boats during on-shore winds, and also during the south-westerly sea breeze in summer.

Shoals.—A small rocky patch, with $4\frac{1}{2}$ fathoms water, lies with the Greek church dome bearing 322° true, distant $9\frac{1}{2}$ cables, and a similar patch, with 5 fathoms water, lies with the dome bearing 327° true, distant $13\frac{1}{2}$ cables.

The town.—Mersina (*Lat. $36^{\circ} 48' N.$, Long. $34^{\circ} 37' E.$*), for a Turkish town, is well built, most of the houses being of stone, and the main streets are fairly broad, and paved with uneven cobbles. It is the seat of the Mutaserif of the Sanjak of Mersina, whose offices are in the main street, which runs parallel to the coast. The most noticeable building is the Greek church, built of stones from Pompeiopolis; it has a grey dome. The population of the town was estimated to be 22,000 in 1905; there is a European colony of about 200, all of whom are engaged in commercial pursuits, the British colony numbering 21 in 1914. There are a large number of Greeks, mostly Cypriots, and it is said that the Christians outnumber the Moslems, but any definite statistics of population are difficult to obtain.

General charts 237, 2606, 2158b, 449.

Plan 2668, Mersina roadstead. Var. 0° 10' W.

There are four Christian churches, a Roman Catholic, a Greek Orthodox, a Syrian Catholic, and an American Mission church, in the town.

- 5 The country around the town is thickly inhabited and cultivated. There are several villages inland, and in front of one, situated 2 cables northward of the lighthouse, is a large barrack. A group of buildings, with a high chimney, the Whithall cotton seed oil factory, situated 2 miles north-eastward of the lighthouse, is conspicuous.
- 10 Most of the foreign Consulates are situated on the sea front, or in the main street, their high flagstaffs being visible from the anchorage.

Trade.—The annual trade of Mersina is said (1914) to amount to £4,000,000, of which £3,000,000 represents the exports, and £1,000,000 the imports. By far the greatest part of the trade is 15 in the export of cotton, cotton-seed oil and cake, which are exported to Italy, Spain, Germany, and a little to England. Grain is the other principal export; about 10,000 tons of oats are sent annually to England, but most of the wheat and barley go to Turkey and Syria. Sesame seed, yellow berries for dyes, and vegetable gum are also 20 exported. Cattle, sheep, and goats are exported to Egypt in winter.

Some 25,000 tons of coal, Welsh and briquettes, are imported annually, the remaining imports being general cargo.

The appliances for working cargoes are more or less primitive.

Shipping.—In 1909, the port (*Lat. 36° 48' N., Long. 34° 37' E.*) 25 was entered and cleared by 645 steam vessels of 797,433 tons, and 14 sailing vessels of 3,324 tons.

Landing piers.—There are no accostable quays of any kind, except for the smallest coasting sailing vessels, which can lie alongside the piers.

30 There are five landing piers, numbered from the eastward:—

No. 1 railway pier is 460 feet long and extends 400 feet beyond the water line; it is from 35 to 20 feet broad, 13 feet above the sea, and there is a depth of 10 feet at the end, whence it shoals gradually to the shore. There are two lines of rails on the pier, and two travel- 35 ling steam cranes, one of 4½ tons, and the other of 3 tons, for working on the outer part of the pier beyond the trolley system.

No. 2 pier is 190 feet long, 15 feet wide, and there is a depth of 5 feet alongside it to 60 feet from the shore.

No. 3 Customs pier is the principal landing place, and the offices of 40 the Captain of the Port and of the Health Officer are here; it is 240 feet long; the portion outside the landing steps is 40 feet, and the inner portion 20 feet broad; the deck is 15 feet above the sea, and the depth is 8 feet at the end, 5½ feet at the landing steps, whence it

General charts 237, 2606, 2158b, 449.

Plan 2668, Mersina roadstead. Var. 0° 10' W.

shoals to the shore. On the pier are a light tramline, running to a store in the square; one one-ton fixed hand crane and one half-ton travelling steam crane.

No. 4 pier is 120 feet long, 12 feet broad, and 12 feet above the sea; 5 there is a depth of 6 feet at the outer end, and $4\frac{1}{2}$ feet at the steps. It belongs to a Russian shipping company.

No. 5 pier is a light iron trestle pier, similar to No. 4 pier, except that there are no landing steps. It is in bad condition.

Tugs and lighters.—There are five small steam tugs, and 10 47 lighters, of from 15 to 50 tons, the majority being of about 30 tons capacity. The lighters are towed between vessels in the anchorage and the landing piers, where they are loaded or discharged. During the summer sea breeze there is an inconvenient little swell at the piers.

Coal.—About 1,000 tons of coal and patent fuel are said to be 15 kept in stock, but little is imported at a time, and the stock is often exhausted.

Supplies.—Meat, vegetables, and bread are plentiful. Good water is supplied in casks brought in small boats. Water is led into the town, through underground pipes, from the river near the light- 20 house, but it is not good; there is a fountain near the Port office. There are two ice factories in the town.

Communication.—There is a Turkish post and telegraph office (the latter being open all night) situated on the shore on the east side of No. 2 pier; there are also French, German, Austrian, and 25 Russian post offices.

Mersina is a regular port of call for all the steam vessels of different nationalities employed in the coasting trade of Asia Minor and Syria.

Mersina is the terminus of the Mersina, Tarsus, and Adana railway. Tarsus is situated 17 miles, and Adana 36 miles, east-north-eastward 30 of Mersina.

Climate.—The summer is hot and damp, and mosquitoes are very troublesome; at this season there is a good deal of malarial fever; then such Europeans as can get away move to Guezni, a hill station about 5 hours distant. 35

The coast from Mersina trends eastward 3 miles to a point (*Lat. 36° 48' N., Long. 34° 41' E.*) on which is Karadavar village; it is low sandhills. About a mile north-north-eastward from the village is a large tree which is conspicuous from the approach to Mersina anchorage. 40

Chart 237, Kara burnu to Karadash burnu.

The coast from Karadavar trends eastward and north-eastward 2 miles to Kazálu, and is low. About 7 miles north-north-eastward

General charts 237, 2632, 2606, 2158b, 449.

Chart 237, Kara burnu to Karadash burnu. Var. nil.

of **Kazálu** is a hill, 1,200 feet high, which makes as an island from the south-westward. From **Kazálu** the coast turns eastward and south-eastward $5\frac{3}{4}$ miles to the mouth of Tersus chai and is sandhills.

- 5 **Tersus chai** (ancient Cydnus) flows through Tarsus town, about 12 miles north-north-eastward; it is 160 feet wide at its entrance and 12 feet deep.

- Syhun chai (ancient Sarus) flows into the sea about 2 miles south-south-eastward of the mouth of Tersus chai; it is nearly 300 feet
10 wide at its entrance, and has also a depth of 12 feet. A shoal spit, projects about one mile off the sandhead which separates the rivers, and it should not be approached to less than 12 fathoms.

- Turtle.**—Along the beach, between Mersina and the mouths of these rivers, numbers of fine turtle are found; in June they go in
15 pairs on the surface of the water, in which position they can be harpooned with ease. The sea appears also well stocked with fish.

- The coast** from Syhun chai trends east-south-eastward 25 miles, and then turns southward half a mile to **Karadash burnu** (*Lat. $36^{\circ} 33' N.$, Long. $35^{\circ} 20' E.$*); it is a beach rising to high sand-
20 hills, with a sandy plain extending some miles inland, but half a mile from the burnu it becomes cliffy. The plain is over a considerable extent a mere desert, some parts being inundated with water, while others are sandhills with a few scattered bushes.

Plan, Karadash road, on sheet 2791.

- 25 One of the large inundations or lakes communicates with the sea $1\frac{3}{10}$ miles north-westward of **Karadash burnu**; it is salt, about 12 miles in length north-east and south-west, about 3 feet deep, and is surrounded by barren sands; its shores are covered with swans, pelicans, storks, &c., and it contains turtle and fish.

- 30 **KARADASH BURNU** is a low white cliff; the ruins of the ancient town and citadel of Megarsus, within the burnu, are conspicuous. Shoal water of 3 fathoms and less extends about $1\frac{1}{4}$ cables from the burnu, and one mile, 259° true, from it is a rocky patch with $4\frac{1}{4}$ fathoms water and from $5\frac{1}{2}$ to 8 fathoms around; the water other-
35 wise shoals gradually to the shore. View on plan 2791.

LIGHT.—A light is exhibited, at 131 feet above the sea, from a white iron framework tower, with an attached white house, the roof of which is red, on the extreme of **Karadash burnu**.

The coast is continued eastward in Chapter V.

General charts 237, 2632, 2606, 2158b, 449.

CHAPTER IV.

CYPRUS.

WEST AND SOUTH COASTS.—CAPE ARNAUTI TO CAPE ANDREAS.
NORTH COAST.—CAPE ARNAUTI TO CAPE ANDREAS.

Lat. 35° 41' N. to Lat. 34° 33' N.
Long. 32° 16' E. to Long. 34° 37' E.

VARIATION IN 1917.—Decreasing about six and a half minutes annually.

Chart 2074, Cyprus. Var. 1° 0' W.

CAPE ARNAUTI (ancient Acamas promontory) (*Lat. 35° 6' N., Long. 32° 18' E.*), the north-west extreme of Cyprus, is a sharp low headland, and the commencement of a range of moderate height, which extends south-south-eastward through the island. The cape rises to a double peak, 690 feet high, about one mile to the southward; its western side is very steep, but the eastern side is thickly wooded, and slopes gradually to the beach. 5

A ledge of sunken rocks extends half a mile north-north-westward from the cape, and on its outer end is **Mazaki islet**; a ridge of foul ground with from 2 to 3 fathoms water, and deep water close-to, extends a mile northward from the islet. 10

Caution.—The cape should not be approached within 2 miles.

The coast from Cape Arnauti trends south-westward $1\frac{1}{4}$ miles, and then turns southward and south-south-eastward 8 miles to **Lara point**; it is high, clifty, precipitous, and for about 5 miles from the cape is skirted by ledges of sandstone rocks nearly awash. 15

Koppo islet, $4\frac{1}{2}$ miles southward of Cape Arnauti, and close-to the shore, is small, and 3 cables south-westward of it is an islet or rock; the ground off them is rocky and uneven. 20

The coast between a point three-quarters of a mile south-south-eastward of Koppo islet and Lara point forms a bight with several small sandy creeks, which in winter are outlets for the torrents from the adjacent hills. Lara point projects half a mile from the coastline, and its western side is clifty; boats occasionally shelter on its northern and southern sides. 25

General charts 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 1° 0' W.

The coast between Lara point and Cape Drepanum, $2\frac{3}{4}$ miles to the southward, forms a bight in which are several sandy bays, open to seaward.

- 5 **CAPE DREPANUM** is low and flat, with several rocks, islets, and sunken ledges close around; St. Yeorgiou island, close off it, is small and 100 feet high, with a flat top; there is a chapel in ruins on the island.

The coast from Cape Drepanum trends south-south-eastward, 10 miles, to Paphos point, and is bordered with sunken rocks, extending off nearly three-quarters of a mile in places. Orphourous islet lies about 3 cables south-westward of a small point, $7\frac{3}{4}$ miles from Cape Drepanum, and there are several sunken rocks between it and the point.

- 15 The sea breaks almost constantly on the reefs and ledges of rocks off the coast from Cape Arnauti to Paphos point.

Paphos point is the extreme of a low peninsula which projects about half a mile south-westward from the coastline.

- 20 **LIGHT.**—A light is shown, at 120 feet above high water, from a white stone tower, with a red dome, 65 feet high, situated $3\frac{1}{2}$ cables northward of the point.

PORT PAPHOS (*Lat. $34^{\circ} 45'$ N., Long. $32^{\circ} 25'$ E.*) lies on the south side of the peninsula, and within two moles which extend from it, but it is encumbered with sand; there are from 4 to 8 feet water in the entrance, and from 10 to 12 feet over a small area inside, where 25 coasting vessels of light draught, with local knowledge, take shelter, except in south-east gales, which send in a considerable swell.

There is a fort, which is in a state of ruin, on the western mole of the port.

- 30 There is a small iron pier, with 5 feet water alongside its head, in the harbour.

Ktima town, about a mile northward of the harbour, is the capital of Paphos district, the head-quarters of the silk industry. Its population, including that of Paphos, was 3,435 in 1911. There is a 35 hospital at Paphos supported by Government.

Trade.—The value of the imports in 1914 was £14,839, and exports £30,936.

Supplies.—Fresh provisions can be obtained, and water is supplied free from a fountain near the pier. There is no coal.

- 40 **Communication.**—There is telegraphic communication.

Shoal.—A patch with 3 fathoms water lies southward of the port, one mile, 158° true, from the lighthouse. Ktima minaret in line with the belfry on a conspicuous building east of Paphos leads eastward of the shoal and westward of Moulia rocks, in not less than 26 feet water.

General charts 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 50' W.

The port should be approached with caution.

The coast from Port Paphos trends east-south-eastward 16 miles, to Cape Aspro, and is fronted by a low sandy and stony beach to 5 miles from the cape, whence the coast is high and rugged, and several rocks and sunken ledges extend off a quarter of a mile.

On the shore northward of Moulia rocks is a large storehouse, used for the collection of the produce of the adjacent plains for exportation.

Moulia rocks, $2\frac{1}{2}$ miles south-eastward from Paphos point light-house, and half a mile off-shore, are two in number, both being low and black; and a ledge of sunken rocks, on which the sea constantly breaks, extends about half a mile west-south-westward from them. There is a depth of 2 fathoms between the rocks and the land to the northward.

Anchorage.—Should it be necessary to anchor on this coast, the anchorage east-south-eastward of Moulia rocks is the best; it is used by vessels that cannot enter Port Paphos. Here there is anchorage in from 6 to 11 fathoms during summer, tolerably sheltered from westerly winds; south-westerly winds are then rare.

Water.—A small supply of water may be obtained by digging a well near the beach.

Cape Aspro (*Lat. $34^{\circ} 38'$ N., Long. $32^{\circ} 43'$ E.*) is the southern and middle part of a line of cliffs, which extends about 2 miles east and west, and the land is 956 feet high, one mile northward of it. The cape shows three cliffs, each cliff being a high bluff headland.

Shoal water extends nearly three-quarters of a mile off the cape.

EPISKOPI BAY.—The coast from Cape Aspro trends east-north-eastward $8\frac{1}{2}$ miles, and then turns south-south-eastward $6\frac{1}{2}$ miles to Cape Zevgari, and forms Episkopi bay. The northern shore of the bay is a succession of small sandy bays with high white cliffs between; the eastern shore is a low sandy beach until about $1\frac{1}{2}$ miles northward of Cape Zevgari, when it gradually rises to a moderate height half a mile from the cape, and then again becomes low.

Pissouri bay and Evdhimou bay, two of the above mentioned sandy bays, lie about one and $3\frac{1}{2}$ miles, respectively eastward of Cape Aspro. Storehouses for carob (locust) beans are built on the beach in these bays, and during fine weather both steamers and native craft anchor off them to load.

The anchorage, in 10 fathoms, from one to $1\frac{1}{2}$ miles off-shore, is very much exposed, and the swell, which continually rolls in, renders it both unsafe and uncomfortable. Neither supplies nor water can be obtained.

Episkopi village is about one mile inland 6 miles northward of Cape

General charts 2606, 2158b, 449.

Chart 2074, Cyprus. Var. $0^{\circ} 45'$ W.

Zevgari; Kouris river, a large stream, passes eastward of it, and enters the sea 5 miles north-north-westward of the cape. Nearly $1\frac{1}{4}$ miles eastward of Episkopi is Kolissi (Kolossi) village and tower. The
5 tower was built by the Knights Templars during their occupation of this part of the island, and is conspicuous from seaward.

AKROTIRI PENINSULA projects about 5 miles southward from the general coastline and is the southernmost part of Cyprus; it is about 4 miles broad, and its highest part, 188 feet, is on
10 the south coast, 2 miles eastward of Cape Zevgari; it gradually becomes low to the northward; in the middle of the peninsula is a large salt lake with depths of about 3 feet. From a distance westward the peninsula appears an island.

Cape Zevgari (*Lat. $34^{\circ} 34'$ N., Long. $32^{\circ} 56'$ E.*), the south-
15 western extreme of Akrotiri peninsula, is about 20 feet high; there are several low rocks above water off it, and foul ground extends nearly a mile westward and half a mile southward.

Plan, Limasol, on sheet 846.

The coast from Cape Zevgari trends eastward 5 miles, to Cape
20 Gata; it is generally steep-to. Vatha is a rock above water, with sunken rocks around, situated in, and close to, the shore of a bight 2 miles eastward of Cape Zevgari.

CAPE GATA is a high and bold cliff; shoal water of from 3 to $5\frac{1}{4}$ fathoms extends $6\frac{1}{2}$ cables south-eastward, and foul ground a
25 quarter of a mile eastward, from it. In thick weather three white patches may be seen before the lighthouse is visible.

LIGHT.—A light is shown, at 190 feet above high water, from white stone tower on the summit, situated 7 cables westward of Cape Gata.

Akrotiri bay.—The coast from Cape Gata trends north-westward $2\frac{1}{4}$ miles, and then northward $4\frac{1}{2}$ miles to Limasol, whence it trends east-north-eastward and eastward 12 miles, to Cape Dolos, forming Akrotiri bay, in which there is anchorage in moderate depths,
30 from half to one mile off-shore, and sheltered from westerly winds, but open south-eastward. The shore to about 5 miles east-north-eastward of Limasol is an almost unbroken sand and shingle beach, with occasional patches of low rocks close to its north-eastern part.

LIMASOL.—Light.—A light is exhibited from a red mast, 18 feet high, on the outer end of the iron pier.

Shoal water of less than 3 fathoms, extends 4 cables off-shore
40 three-quarters of a mile south-westward of the pier, and from one to 2 cables off the town.

General charts 2074, 2606, 2158b, 449.

Plan, Limasol, on sheet 846. Var. 0° 45' W.

Anchorage.—There is anchorage off the town, in from 7 to 12 fathoms, good holding ground, and although open to the southward and eastward vessels with good anchors and cables do not drag in gales. In winter it is usual to anchor in about 12 fathoms. North-easterly gales are prevalent from October to April. 5

The town extends about one mile along the beach; it is clean, with good, but narrow, streets. The cathedral, with a dome, and a large double-storied house, with a tower, close eastward of it, are conspicuous from seaward. A quarter of a mile westward of the iron pier is a small house, with a red roof; close westward of the town is a tile factory with two chimneys; and $1\frac{1}{2}$ miles north-eastward of the pier are gypsum factory buildings, with red roofs and a high chimney. 10

A range of wedge-like hills, covered with bushes, lies at the back of the town, and a stream flows through the town in winter, but it dries in summer. The town is administered by a commissioner, assisted by a municipal council, and there is a force of military police. The population was 10,302 in 1911. 15

Piers.—There is an iron pier, 302 yards long, with a T-head, and a depth of 15 feet at its end, where small steamers lie and coal. Trolleys are run on rails from the pierhead to the Custom-house; the pier is provided with two cranes, one fixed at its extremity, and the other travelling on trolley lines. 20

An iron trestles pier (*Lat. 34° 40' N., Long. 33° 2' E.*), extending from the quarantine station, about a cable westward of the preceding, is 70 yards long, and has a vertical ladder at its end. An iron pier, 100 yards long, was constructed in 1914 about a cable north-eastward of the long iron pier. A small private pier, belonging to the gypsum factory, extends from the eastern end of the town. 25

The teredo is very destructive here. 30

Buoys.—Four red buoys off the end of the iron pier, two on either side, are available for mooring purposes for vessels alongside the pier; the two outer buoys are in 3 fathoms, and the two inner ones in $1\frac{1}{2}$ fathoms, water.

Landing.—The proper landing place is at the iron pier, where there are steps, but during strong north-easterly and south-easterly gales it is impossible to land, owing to the surf; as far as has been ascertained there is sufficient water for laden boats to land anywhere on the coast in the vicinity. 35

The average number of days that cargo cannot be worked in the roads on account of weather is, in January $8\frac{1}{2}$, February $6\frac{1}{4}$, March $4\frac{3}{4}$, April 3, May $1\frac{1}{2}$, June, July, and August each $\frac{1}{10}$, September $\frac{3}{4}$, October 6, November 6, and December $7\frac{3}{4}$. 40

General charts 2074, 2606, 2158b, 449.

Plan, Limasol, on sheet 846. Var. 0° 40' W.

Trade.—The principal trade is wine to Egypt, and carobs (locust beans) to Europe. In 1913, the value of the imports was £148,087, and that of the exports £196,607.

5 **Supplies.**—Provisions are plentiful. Water is taken through pipes to the end of the iron pier; it is obtained from a reservoir formed by connecting a system of wells, and is good and abundant; when water is wanted apply to the Pier master. Water is laid on through the town by iron pipes. There is no coal.

10 **Communication.**—Limasol (*Lat. 34° 40' N., Long. 33° 2' E.*) has communication by telegraph with the six principal towns in the island, and, in summer only, with Platres and Troodos. There are motor-bus services daily between Nicosia, Limasol, and Larnaka.

Health.—Fever of a mild type exists in the low-lying country
15 round the town, but climatic diseases are uncommon. There is a hospital in the town supported by Government.

Chart 2074, Cyprus.

THE COAST.—The ruins of ancient Amathus, once famous for its metals, are situated on the coast about 5 miles east-north-eastward
20 of Limasol; the site of the town, with its wall and harbour, is clearly marked.

The coast from Amathus trends eastward $5\frac{1}{2}$ miles, and then east-north-eastward one mile, to Cape Dolos. There are many rocks within about a quarter of a mile of the shore in the vicinity of Amathus, and
25 for about 3 miles westward of Cape Dolos.

A bay extends nearly a mile northward between Cape Dolos and a point $2\frac{1}{2}$ miles east-north-eastward of it.

Zyyi, one mile north-eastward of the point just mentioned, is a place where large quantities of carobs (locust beans) are shipped.
30 There is an iron pier 410 feet long, with $5\frac{1}{2}$ feet water alongside.

A mountainous range approaches the sea in this locality, and Mount Chionia or Machaira (Makhæra), its summit, 14 miles north-north-westward from Zyyi, is 4,674 feet high.

The coast from Zyyi trends east-north-eastward $14\frac{1}{4}$ miles, to
35 Cape Kiti. Between Cape Dolos and Cape Kiti there are many out-lying rocks, but none extend more than about one-quarter of a mile from the shore. The 5-fathom line is from 3 to 5 cables off-shore, but for $1\frac{1}{2}$ miles westward of Cape Kiti it is one mile from the beach. When navigating along the coast do not shoal the water to less than
40 15 fathoms.

Petounda point, $8\frac{1}{2}$ miles east-north-eastward of Zyyi, projects a little from the coastline, and has been mistaken for Cape Kiti.

General charts 2074, 2606, 2158b, 449.

Plan, Larnaka, on sheet 846. Var. 0° 40' W.

Cape Kiti is low ; a square tower, 73 feet above the sea, stands on a slight elevation a mile to the northward. Shoal water of less than 5 fathoms extends a mile south-south-eastward from the lighthouse, and three-quarters of a mile eastward from it. The cape should not be approached to less than 15 fathoms.

LIGHT.—A light is exhibited, at 82 feet above high water, from a white stone tower situated one cable northward of the south extreme of Cape Kiti.

LARNAKA BAY.—The shore of Larnaka bay from Cape Kiti trends north-eastward $3\frac{8}{10}$ miles, to Dades or Kokino point, and then northward about 3 miles, to Larnaka town ; it then continues northward $2\frac{1}{2}$ miles, when it gradually turns eastward $11\frac{1}{2}$ miles, to Cape Pyla, the eastern point of the bay. The shore from Cape Kiti to Larnaka is a stony and shingly beach, with an extensive plain at the back, on which are three salt lakes that extend, near the shore, from $1\frac{3}{4}$ miles northward of Cape Kiti to about three-quarters of a mile from the town. A few rocks skirt the beach from the cape to about half a mile northward of Dades point.

On the west shore of the northern lake, and $1\frac{9}{10}$ miles north-westward from Dades point, is a conspicuous mosque with a minaret built over a tomb, called Sultana Tekeh, and said by Muhammadans to be where Umm Harâm, the foster-sister of Muhammad, was accidentally killed and buried in the year 649 A.D. The best salt-works in Cyprus are on the east shore of this lake.

The shore, for 5 miles northward and eastward from Larnaka town, is a sandy beach, backed by a slight elevation, on which are several villages ; thence eastward to Cape Pyla the shore is rocky, with a few outlying rocks close off it.

LARNAKA (*Lat. 34° 55' N., Long. 33° 38' E.*), the principal seaport of Cyprus, and chief town of a district containing 29,737 inhabitants in 1911, is situated $6\frac{1}{2}$ miles from Cape Kiti, and about 26 miles south-eastward from Nicosia, the capital of the island.

Lights.—A light is exhibited from a black iron column on the southern end of the sheltering arm at the iron pierhead ; and a light is exhibited from a black iron column on the northern end of the sheltering arm.

Anchorage.—The anchorage off Larnaka is safe for vessels with good anchors and cables throughout the year, but the short sea and heavy swell that runs into the bay during south-easterly gales, to which it is open, render it very uncomfortable, and the swell during north-east and south-west gales makes landing difficult. South and south-

General charts 2074, 2606, 2158b, 449.

Plan, Larnaka, on sheet 846. Var. 0° 40' W.

east gales never last long, but always veer to south-west, and if vessels drag it is in a direction parallel to the shore.

During summer the land and sea breezes are tolerably regular; the latter blows along the shore from the southward.

The usual anchorage is eastward of the northern part of the Marina in from 12 to 18 fathoms, mud; in places in less than 10 fathoms water the bottom is hard and bad holding ground. In strong south-easterly winds the sea often breaks in 5 and 6 fathoms water.

Caution.—Anchorage must be avoided south-eastward of the south end of the Marina.

Quarantine anchorage.—Vessels in quarantine anchor off the shore to the northward of the lazaretto.

Directions.—From the westward, pass $1\frac{1}{2}$ miles southward of Cape Kiti, and give the coast from the cape northward to the anchorage a berth of a mile.

From the eastward steer direct to the anchorage when southward of Cape Greco.

Mount Stavrovouni, 10 miles westward of Larnaka, is isolated, surmounted by a monastery, and conspicuous from the approach to the anchorage.

The water shoals quickly from 20 fathoms towards the shore, and caution is necessary when anchoring.

The town is in two parts, the principal one, called the Marina or Scála, extends along the beach about one mile and is nearly joined to the other part, which is on its north-western side and a little inland. The Marina consists of warehouses, bazaars, and many houses, and is bounded on the south by a small redoubt (in ruins) and on the north by the lazaretto, which is a large establishment. Southward of the lazaretto are the public buildings, consisting of offices, Custom-house, warehouses, and the Commissioner's house, all with bluewashed fronts, and south-westward of the small iron jetty is a conspicuous minaret.

The Capuchin convent in Larnaka, which has a dome and tower, is conspicuous from the anchorage approach. Most of the houses both at Larnaka and the Marina, being built of unbaked bricks, and scarcely ever whitewashed, present anything but a cheerful appearance. There is a hospital in the town supported by Government. The population in 1911 was 9,262.

Piers.—An iron pier extends 900 feet eastward from the shore 150 yards southward of the lazaretto; a sheltering arm extends 250 feet northward from its outer end, where the depth is 7 feet. Two hand cranes, each capable of lifting 2 tons, work on rails which extend along the pier and are also used by trucks with cargo; an 8-ton crane is fitted on the sheltering arm. There is a flagstaff at the inner end of the pier.

General charts 2074, 2606, 2158b, 449.

Plan, Larnaka, on sheet 846. Var. 0° 40' W.

A jetty extends 200 feet from the shore 2 cables northward of the pier just mentioned.

There is a small iron jetty near an old Turkish fort (*Lat.* $34^{\circ}54'N.$, *Long.* $33^{\circ}38'E.$), now a police barrack and prison, in the Marina; the depth at its head is $5\frac{1}{2}$ feet.

Landing.—The landing place is at the iron pier, where there are steps, but landing in winter is sometimes impracticable, and in summer, during the sea breeze, it is very disagreeable; it is dangerous with any swell, as the sea breaks some distance outside the end of the pier in even moderate weather; there is not enough water for a steamboat to go alongside in safety except in absolutely smooth weather. In strong north-east gales it is generally possible to land at the quarantine station. The morning and evening are generally calm in summer, and these are the best times to land.

The average number of days that cargo cannot be worked in the roads on account of weather is, in January $6\frac{1}{4}$; February $3\frac{1}{4}$; March 2; April $\frac{1}{2}$; May $\frac{1}{4}$; June, July, August, and September 0; October $\frac{3}{4}$; November $2\frac{3}{4}$; December 5.

Trade.—In 1913, the value of the imports was £272,716, and that of the exports £244,520.

Supplies.—Beef, poultry, vegetables, fruit, and wine are readily procured on reasonable terms. Water is brought from a distance of 5 miles by an aqueduct, and can be obtained from the end of the pier on application to the Harbour master, or sent off in bulk in open boats of about 4 tons each; it is good. There are a number of wells in the town, but the water in them is salt or brackish, and bad.

There is no coal available for shipping.

Communication.—There is telegraphic communication with all towns in Cyprus.

There are motor-bus services daily between Nicosia, Larnaka, and Limasol.

Chart 2074, Cyprus.

Quarantine station.—The quarantine station is on the shore of Larnaka bay, about 6 miles north-eastward of the town.

Cape Pyla is 376 feet high, and there is a ruined round tower on it. View D on chart 2074

The coast from Cape Pyla trends east-north-eastward $6\frac{1}{2}$ miles, and then east-south-eastward $5\frac{1}{2}$ miles to Cape Greco; it is rocky, but there are one or two coves where boats can land.

General charts 2074, 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 30' W.

A remarkable abrupt table cliff, 400 feet high, is situated a mile westward of Cape Greco; it appears like an old fortress. Views D and E on chart 2074.

- 5 **CAPE GRECO** (*Lat. 34° 56' N., Long. 34° 5' E.*), the south-east extreme of Cyprus, is a small peninsula, the middle of the north-western side of which is connected to the mainland by a narrow isthmus; it is low and tapering, but there is deep water about 3 cables off it.

- 10 **LIGHT**.—A light is exhibited, at 54 feet above high water, from a white stone tower, 50 feet high, on the cape.

Current.—A current sets westward, past Cape Greco, at the rate of one-half to three-quarters of a knot.

- 15 **FAMAGUSTA BAY**.—The shore of Famagusta bay trends north-north-westward 18 miles from Cape Greco; it then trends northward 6 miles, when it turns north-eastward and eastward 6½ miles to Cape Elæa.

- 20 A rock, with 3 fathoms water, lies 4½ miles northward of Cape Greco and three-quarters of a mile off-shore. The eastern extreme of Cape Greco, bearing 184° true, leads about a mile eastward of it.

Plans, Famagusta, on sheet 847.

- 25 **Famagusta harbour**.—About 12 miles north-north-westward of Cape Greco, and 3½ cables eastward of the south end of the town, is a point of low sandstone, from which a line of flat rocky islets extends a quarter of a mile north-north-westward; Messanisi (North islet), the northern one, is one foot high.

- 30 A line of rocky islets and shoals continues 1¼ miles north-north-westward from Messanisi, leaving a channel between it and the shore, about 4½ cables wide, with depths of from 8 to 5 fathoms over a width of 3 cables for 8½ cables within its northern end, whence the depth decreases to 3 fathoms and less.

- 35 The area westward of the islets and shoals extending 3 cables north-north-westward from Messanisi is sheltered from south-easterly gales; in this area, about a cable from the shoals, and the ancient mole extending westward from Messanisi, there are general depths of from 4½ to 3 fathoms; the holding ground is better further northward.

- 40 **Rocks**.—At the northern end of the line of shoals extending from Messanisi is a rock with 21 feet water, a cable westward of which is a rock with 4¾ fathoms water; a rock with 26 feet water lies nearly a cable to the southward of the 21-foot rock; and a rock with 21 feet water 2 cables further southward.

General charts 2074, 2606, 2158b, 449.

Plans, Famagusta, on sheet 847. Var. 0° 30' W.

The inner harbour lies eastward of the town, and between it and Messanisi with the islets to the southward. An ancient mole, dry at low water, extends about $2\frac{1}{4}$ cables westward from Messanisi, and a mole extends some 75 yards from the town walls towards it, leaving an entrance, 150 feet wide, to the inner harbour. 5

The approach to the inner harbour is through a channel about 250 feet wide, dredged to a depth of 26 feet; its axis trends 159° true, and leads through the middle of the entrance.

Within the entrance a basin, which extends about 900 feet south-eastward with a width of 600 feet, has been dredged to a depth of 24 feet. 10

A basin, 450 feet long, and 200 feet wide, with 15 feet water, is on the south-eastern side of the southern part of the basin above-mentioned. Northerly winds cause a slight swell in the basins. 15

LIGHTS.—A light is exhibited from a black iron column (*Lat. $35^\circ 8' N.$, Long. $33^\circ 56' E.$*), 35 feet high, situated $2\frac{1}{4}$ cables inland on the western shore of the harbour, and $13\frac{1}{2}$ cables, 301° true, from Messanisi.

A light is exhibited from a black iron column, 25 feet high, on the mole heads on each side of the entrance to the inner harbour. 20

A light is exhibited from a mast surmounting a small white hut, 22 feet high, situated on the south-east bastion of the town walls.

Beacon.—A beacon, 30 feet high, painted black and white in horizontal bands, stands on the west shore of the harbour, 36° true, $2\frac{1}{4}$ cables from the outer light-column. 25

Buoys.—A red bell-buoy, surmounted by a globe, is moored in 7 fathoms water, about 2 cables northward of the 21-foot rock at the northern end of the shoals extending north-north-westward from Messanisi, and with the outer black light-column, distant $9\frac{1}{2}$ cables, and in line with the beacon. 30

The northern entrance to the dredged channel leading into the inner harbour is marked by a red can buoy, surmounted by a cage, on its eastern side, and by a black conical buoy, surmounted by a globe, on its western side. 35

Two mooring buoys are placed on the eastern side of the northern basin in the inner harbour. A small mooring buoy is placed on the north-western point of the shoal off the iron jetty, and is used for hauling off by local craft.

Anchorage.—Large vessels anchor in about 17 fathoms water, stiff mud, with Messanisi bearing about 254° true, distant 6 cables; in this locality the bottom in less than 12 fathoms is rock and sand. There is also anchorage in 7 fathoms water in the channel inside the shoals with the outer light-column bearing about 277° true, distant 40

General charts 2074, 2606, 2158b, 449.

Plans, Famagusta, on sheet 847. Var. 0° 30' W.

6½ cables, but the shoals give no protection whatever to this position in north-easterly and easterly gales, therefore vessels anchored more than 3 cables from the mole should go to sea during the gale.

- 5 Small vessels anchor in the sheltered area within 3 cables from the mole in from 3 to 4 fathoms, and also enter the inner harbour.

Quays.—On the south-western side of the large basin is a quay, 900 feet long, with 24 feet water alongside, and an iron jetty, 390 feet long, with 15 feet water alongside, continues the quay south-eastward.

- 10 Vessels alongside the quay secure to bollards; a vessel alongside moves but slightly when there is a heavy sea, caused by strong north-easterly winds outside. There is a 12-ton travelling crane on the quay, (*Lat. 35° 7' N., Long. 33° 57' E.*), and a one-ton crane on the iron jetty end.

- 15 The railway, which extends to Nicosia and Morphou, passes round the southern side of the town, and on to the quay.

- Winds.**—The fine weather of summer usually continues to the middle of October. East-north-easterly winds, which prevail in winter, commence about the beginning of November, and blow hard; 20 they are accompanied by a heavy sea, and the current sometimes sets northward, when vessels at the anchorage lay broadside on and roll considerably. Northerly winds in winter are very cold, and raise a short choppy sea.

Meteorological table.—*See Appendix III.*

- 25 **Tides.**—It is high water, full and change, at Famagusta, at Xh. 0m.; springs rise 1½ feet.

Pilot.—A pilot can be obtained by making the pilot signal.

- Directions.**—To enter the channel inside the shoals, approach with the outer light-column in line with the black and white beacon, 30 bearing 216° true, which leads to the bell-buoy northward of the line of shoals; pass north-westward of the buoy, and bring the mark again on; when the small white hut, on the south-east bastion, from which a light is exhibited, is seen midway between the black light-columns on the moleheads, bearing 159° true, keep it so, and anchor as above 35 directed, or proceed with the same mark on between the two buoys marking the entrance to the dredged channel, and through that channel and between the moleheads into the inner harbour.

- During strong winds a large vessel will experience difficulty in entering, and securing in, the inner harbour; in summer, the best 40 time to enter is from 7h. to 9h. a.m., or after 5h. p.m., when the wind is usually light, or it is calm.

- At night.—Approach with the outer light showing *white* and bearing 207° true, which leads 1½ cables north-westward of the bell-buoy, observing that the line separating the *white* and *red* sectors of the 45 light, bearing 216° true, leads directly over the bell-buoy. When the

General charts 2074, 2606, 2158b, 449.

Plans, Famagusta, on sheet 847. Var. $0^{\circ} 30' W$.

white fixed light on the south-east bastion is seen midway between the two red fixed lights on the moleheads, bearing 159° true, keep this mark on to the anchorage, or into the inner harbour.

The town (ancient Arsinoe) (*Lat.* $35^{\circ} 7' N$, *Long.* $33^{\circ} 57' E$.), on the west side of the inner harbour, is enclosed by massive fortress walls, with a perimeter of about 16 cables, on the outer sides of which is a ditch, 80 feet broad, and 45 feet deep. Openings have been made in these walls in addition to the old gates, to facilitate communication between the town and the harbour. The town was in a flourishing condition under the Venetians, but after being taken by the Turks in 1571 it began to decay, and it was ruined by an earthquake in 1735. The cathedral, now used as a mosque, has a minaret, and is conspicuous from seaward. There is a hospital in the town supported by Government. View on chart 2074. The Christian people, with their industries, as well as the Government offices, are situated in Varosha village, about a mile southward of the town.

The population of Famagusta was 5,327 in 1911.

Coal.—About 1,000 tons of coal are imported in the autumn annually for the use of the Government railway; the stock varies. About 1,200 tons of coal are imported annually by private firms, and there are usually some 300 tons in stock.

Supplies.—Meat, vegetables, and bread are plentiful. Water is supplied from a hose at the quay on application to the Harbour master; it is obtained from a well, and is said to be good, being used for drinking on shore; there is none other.

Trade.—In 1914, the value of the imports at Famagusta was £119,938 and that of the exports £99,942.

Shipping.—In 1914 the port was entered by 61 steam vessels of 58,431 aggregate tons.

Communication.—*See* page 5.

Plan, Famagusta and Salamis, on sheet 847.

Salamis.—About 3 miles northward of Famagusta is the ancient port of Salamis, now a shallow indentation, with the ruins of the town in the vicinity.

There is open anchorage about $1\frac{2}{10}$ miles eastward of the shore of the port with the northern black light-column of Famagusta bearing 185° true, distant 2 miles, in 13 fathoms water, sand and weed.

Chart 2074, Cyprus.

St. Sergios is about $1\frac{1}{2}$ miles north-westward of Salamis, and there are stores here for cargo.

Bogaz, a small place on the shore 8 miles northward of Salamis, is frequented by coasters.

General charts 2074, 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 20' W.

Gastria bay, $3\frac{1}{2}$ miles westward of Cape Elæa, is small; it lies between Castroulli point on the west, and Ayios Yoannis point on the east. It is frequented by vessels to load grain, and there is a trading station, with stores, on the shore. There is a small hill, resembling a castle, near Castroulli point.

Anchor in not less than 10 fathoms nearly a mile southward of the trading station, with Cape Elæa bearing 76° true; the holding ground is good.

The bay is open between south and east, but is said to be safe. There is sufficient room for a sailing vessel to get under way should strong east winds set in.

South-easterly winds last generally but a few hours, and veer to south-west.

Gastria village is about one mile northward of the head of the bay.

CAPE ELÆA is clifty, and for about $1\frac{1}{2}$ miles on each side rocks and foul ground extend off about a quarter of a mile.

The coast from Cape Elæa trends north-eastward $30\frac{1}{2}$ miles, to Galounopetra point and is nearly steep-to, except off Khelonæs point, 22 miles from Cape Elæa, where shoal water extends off about one-quarter of a mile. View C on chart 2074.

Khelonæs anchorage (*Lat. $35^\circ 33'$ N., Long. $34^\circ 26'$ E.*), where vessels load grain, is indicated by the stores which are situated close to the shore. Anchor in 20 fathoms water with the stores bearing 310° true, at such a distance from the shore as to have room to get under way, with strong east-north-easterly winds, which prevail during winter.

The anchorage is safe during south-westerly winds. The anchor should have a buoy rope attached so that should it become necessary to get under way during strong easterly winds, the anchor can be slipped after, in a sailing vessel, a hawser from the port quarter has been made fast to the cable to cant her.

It is dangerous for a sailing vessel to get under way during these winds for when the cable is shortened in the anchor will come home and the vessel will get sternway, and her head will not cant to seaward; vessels are often wrecked in consequence.

A second anchor must be ready and a kedge anchor on the port bow with a hawser to the port quarter, so that should the cable part the kedge may be immediately let go to cant the vessel to seaward.

Sailing vessels in the anchorage, in winter, should have sufficient ballast to be manageable.

At Khelonæs the fine summer weather usually continues until the middle of October, and east-north-east winds, which blow hard all the winter, usually commence about the beginning of November.

General charts 2074, 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 10' W.

Galounopetra point.—A black rock just above water lies a quarter of a mile south-south-eastward of Galounopetra point.

The coast from Galounopetra point trends north-north-eastward $3\frac{1}{2}$ miles to Cape Andreas; nearly midway and close to the rocky shore is a monastery and a spring of fresh water. View C on chart 2074. 5

During summer, vessels anchor off the coast to load corn.

CAPE ANDREAS is the north-eastern point of Cyprus; there are some ruins and tombs on it. 10

Klides islet is about a mile north-eastward of the cape, and there are several rocks above and below water in the passage between.

LIGHT.—A light is exhibited, at 60 feet above high water, from a white steel tower with a red lantern, 25 feet high, on Klides islet. 15

NORTH COAST.

Chart 2074, Cyprus. Var. 1° 0' W.

KHRYSOXKHOU BAY lies between Cape Arnauti (Lat. $35^{\circ} 6' N.$, Long. $32^{\circ} 18' E.$) (page 133) and Pomos point, 14 miles east-north-eastward.

There are several trading stations on the north coast where steam vessels call for cargo; they are marked on the chart. 20

The shore from Cape Arnauti trends south-eastward $6\frac{1}{2}$ miles to Latzi, and is rocky and rugged with small indentations.

Kakoskaliou islet, 3 miles south-eastward of Cape Arnauti, and nearly half a mile off-shore, has some rocks near it; the islet affords no shelter. 25

Latzi is a trading station, with some stores; there is a small pier here, which shelters vessels from the sea breeze; the winter gales are said not to blow home.

Anchorage can be obtained in summer off the shore of Khrysoxhou bay, between Kakoskaliou islet and Pomos point, in moderate depths of water, and good holding ground. The bay is much frequented by coasting vessels, which come for corn. 30

The shore from Latzi trends north-eastward; for $8\frac{1}{2}$ miles it is a low sandy beach, of which the last 2 miles is fringed by a ledge of sunken rocks, whence to Pomos point, a distance of 3 miles, it is rugged, and skirted by outlying rocks above and below water. 35

Polis village.—A small river from the mountains flows into the sea $1\frac{1}{4}$ miles eastward of Latzi, and on its banks, about half a mile inland, are the scattered houses of Polis village. 40

General charts 237, 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 40' W.

Pomos point is low and sandy, with several rocks above water off it; shoal water extends one mile north-westward from the point.

MORPHOU BAY lies between Pomos point and Cape Kormakiti, 23 miles north-eastward. The shore from Pomos point trends eastward 6 miles to Cape Kokkino, and thence east-south-eastward 8 miles to Karavostasi; it is rocky, but Pyrgo bay, where there are several springs of fresh water, lies $1\frac{1}{2}$ miles eastward of Cape Kokkino.

Cape Limniti is situated $3\frac{1}{2}$ miles eastward of Cape Kokkino, and Loutros bay, small and sandy, lies between projecting cliffs under a small island on the east side of Cape Limniti. Pyrgo and Loutros bays afford good summer anchorage in from 6 to 12 fathoms water, sand and weeds bottom, and are occasionally visited by vessels to load corn; native vessels also sometimes anchor in them in winter, but they go to sea on the first indication of a northerly gale, which they know from experience, when the anchorages become dangerous.

Karavostasi village is a number of buildings and stores, and is conspicuous from seaward. There is an iron pier here, 150 feet long.

Supplies.—About $2\frac{1}{2}$ miles south-eastward of Karavostasi is Lefka town, in a valley with luxuriant vegetation, where sheep, poultry, bread, eggs, &c., can be obtained; some of the best wines of Cyprus are made in this locality.

Mount Troodos (ancient Olympus), about 13 miles southward of Karavostasi, is 6,406 feet high, and thickly covered with pine trees; near its summit is a military camp and a hotel, with which there is telegraphic communication in summer.

The shore from Karavostasi (*Lat. 35° 8' N., Long. 32° 50' E.*) trends east-north-eastward 4 miles, and then northward 8 miles, to abreast Ayia Irmi village; it is a low pebbly and sandy beach. About $3\frac{1}{2}$ miles eastward of Karavostasi is Pendaria village.

Morphou town.—The mouth of the River Serakhis is situated on the eastern shore of the bay, 7 miles north-eastward of Karavostasi, but it appears to be nearly lost in the beach. Morphou town is situated on the left bank of the river, about 4 miles south-eastward from its mouth; its population was 3,228 in 1911. There is a railway between Morphou and Famagusta, *viâ* Nicosia, and there are two trains daily.

The shore, from abreast Ayia Irmi village, trends northward $6\frac{1}{2}$ miles, to Cape Kormakiti, and is low and rocky, with foul ground extending about half a mile off it.

Anchorage off the shore of Morphou bay, between Karavostasi and Cape Kormakiti, although the depth is moderate and the ground

General charts 2606, 2158b, 449.

Chart 2074, Cyprus. Var. 0° 40' W.

good, is unsafe; it is open to the westerly, or sea breeze, which causes a heavy sea, and renders landing impossible.

Cape Kormakiti (ancient Crommyon promontory) is the extreme of a low point of land, rising to a small flat-topped hill about 3 miles south-eastward, from which steep and serrated ridges of hills and mountains run within and parallel to the north coast of the island eastward to Cape Andreas. A small islet, 20 feet high, lies close northward of the cape. Shoal water and rocky ground extend about half a mile off the cape. View A on chart 2074.

The coast from Cape Kormakiti trends east-south-eastward 10 miles to Vavilas point, from which shoal water extends half a mile north-north-westward. Yeorgios bay, on the western side of the point appears to be clear.

The coast from Vavilas point trends eastward, 4 miles, to Akhiropietos head. There is a trading station with stores, $1\frac{1}{4}$ miles eastward of Vavilas point. Anchorage can be obtained westward of Akhiropietos head, about 3 cables off-shore, sand and mud bottom.

Supplies.—Provisions can be obtained from Lapithos town, about 2 miles south-westward, and Karavas town, about one mile southward, of Akhiropietos head. Water can also be procured.

Mount Kornos, $2\frac{1}{2}$ miles south-south-eastward from Vavilas point, is 3,106 feet high. View A on chart 2074.

Akhiropietos head is a projecting point with a monastery on its western side, and there is an islet off it; a spit extends a mile northward from the head.

The coast from Akhiropietos head trends eastward $4\frac{1}{2}$ miles, to a point; Glykyotissa islet, a quarter of a mile off the point, has the appearance of being fortified, and there are rocks about a cable around it. The coast then trends eastward $1\frac{3}{4}$ miles to Kyrenia.

Plan, Kyrenia, on chart 2074.

Kyrenia harbour (*Lat. 35° 20' N., Long. 33° 20' E.*) is an indentation in the coast, about 500 feet in extent, protected by moles; there is a depth of 4 fathoms in the entrance, but the general depth inside is 2 fathoms, and it has been dredged to a least depth of $1\frac{1}{4}$ fathoms. The harbour, which is only suitable for small vessels, affords but little shelter from north-west and northerly winds. Small coasting craft can lie alongside an extension of an old stone mole. A fort, built by the Venetians, stands on the eastern side of the harbour; it is now a prison; close northward of it is an ancient sea wall. The population of the town of Kyrenia, which surrounds the harbour, was 1,726 in 1911. There is a hospital, supported by Government, at Kyrenia. Views on chart 2074.

General charts 2074, 2606, 2158b, 449.

Plan, Kyrenia, on chart 2074. Var. 0° 20' W.

Light.—A light is exhibited from the western molehead at Kyrenia.

Trade.—In 1914, the value of the exports was £13,854, and that
5 of the imports £9,067.

Supplies.—Provisions can be obtained, and water is laid on to a quay in the harbour in pipes.

Communication.—There is a road to Nicosia, 10 miles to the southward, with which place there is also telegraphic communication.

10 *Chart 2074, Cyprus.*

The coast from Kyrenia trends eastward 14 miles to Stazousa point; there is a trading station at Vikla, 6 miles from Kyrenia, and Khoti islet lies about 2 cables off-shore $5\frac{1}{2}$ miles further eastward. Mount Buffavento, 6 miles south-eastward of Kyrenia, is 3,135 feet
15 high, and Mount Pentadaktylos is about $2\frac{1}{2}$ miles further eastward. View B on chart 2074.

Stazousa point is small, jutting out about a quarter of a mile from the coastline, and is bordered by rocks. The coast thence trends east-north-eastward 31 miles to Cape Plakoti.

20 Phourni islet lies about 2 cables off a small point, $5\frac{1}{2}$ miles eastward of Stazousa point; there are trading stations about one mile eastward of it; at Keminakia, 4 miles further eastward, and on the coast $2\frac{1}{4}$ miles eastward of Keminakia. Karavopetra is a rock or islet about a quarter of a mile off a point $5\frac{1}{2}$ miles eastward of Keminakia, and
25 there is a sunken rock between it and the point. Galounia, $1\frac{3}{4}$ miles eastward of Karavopetra, is a ledge of rocks, extending about 3 cables off-shore. There are trading stations on the coast southward of Karavopetra, and eastward of Galounia. A reef extends about three-quarters of a mile off the coast nearly 3 miles eastward of Galounia.

30 **Cape Plakoti** (*Lat. 35° 33' N., Long. 34° 11' E.*) is a broad projection of the coast. Mount Pamboulos, $4\frac{1}{2}$ miles east-south-eastward of it, is 1,194 feet high. The coast from Cape Plakoti trends east-north-eastward $21\frac{1}{2}$ miles to Cape Andreas.

Cape Andreas.—Klides islet.—Light.—See page 147.

General charts 237, 2606, 2158b, 449.

CHAPTER V.

COAST OF SYRIA.

KARADASH BURNU TO EL ARISH.

Lat. 36° 32' N., Long. 35° 20' E. to Lat. 31° 6' N., Long. 33° 48' E.

VARIATION IN 1917.—Westerly decreasing and easterly increasing about six and a half minutes annually.

Chart 2632, Gulf of Iskanderún to Markhab. Var. nil.

GULF OF ISKANDERÚN, at the north extreme of the coast of Syria, extends about 40 miles north-eastward from its entrance, which lies between Karadash burnu and Ras el Khanzir, 25 miles south-eastward; the average width of the gulf is about 18 miles, and this continues almost to its head. The depth decreases gradually from 50 fathoms in the entrance to about 20 fathoms some 2 miles off-shore, and there are no outlying shoals; the bottom is generally mud. The shores vary considerably, but are mostly plains at the bases of the mountains. 10

Taudi dagh, a range on the north-western side of the gulf, rises to the height of 1,995 feet (*Lat. 36° 50' N., Long. 35° 38' E.*), $3\frac{1}{2}$ miles inland from Ayas bay. Ghiawúr or Jawúr dagh (ancient Amanus mons) reaches the height of 6,049 feet about 18 miles eastward of the north extreme of the gulf; Alma dagh, 7 miles southward of Alexandretta town, is 4,380 feet high, and commands the pass of Beilan, which leads to Aleppo. South-westward of Beilan, Alma dagh range has serrated sides and numerous summits, while the sharp rocky ridge Jebel Karsarek or Rhoms trends west-south-westward, keeping nearly the same elevation, till its wooded slopes terminate in the rugged peak of Ras el Khanzir, 5,474 feet high. 15
20

Several mountain torrents and small streams flow into the gulf, the principal being Jaihûn chai, near Ayas bay on the north-west shore, which is navigable for boats, and Deli chai, near the Plain of Issus.

Sea level.—There is a rise of from $1\frac{1}{2}$ to 2 feet water on the shores of the gulf at times; it is probably caused by winds. 25

Plan, Karadash road, on sheet 2791.

The coast from Karadash burnu (page 132) trends east-north-eastward 4 miles to a point, and shoal water of less than 3 fathoms,

General charts 2632, 2606, 2158b, 449.

Plan, Karadash road, on sheet 2791. Var. nil.

with ledges of rocks in places, extends from about $1\frac{1}{2}$ to 6 cables off it. From a point nearly 2 miles from Karadash burnu several low rocks and islets extend $1\frac{1}{2}$ miles eastward, and afford shelter to the small
 5 country boats; on the shore north-westward of the islets is the small village of Karadash khan. View on plan 2791.

Anchorage.—There is anchorage, during summer, off the eastern islet, in from 4 to 6 fathoms, white sand, and vessels load with grain brought from the extensive Cilicia plain to the north-westward.

10 **Supplies.**—Mutton and poultry are obtainable at Karadash khan.

Chart 2632, Gulf of Iskanderûn to Markhab.

The COAST, from the point 4 miles east-north-eastward of Karadash burnu (*Lat.* $36^{\circ} 32' N.$, *Long.* $35^{\circ} 20' E.$), trends north-
 15 ward one mile, and is rocky; it then continues eastward about 9 miles, and is very low sandhills, almost steep-to, off which there is good anchorage, with strong northerly winds, in from 5 to 7 fathoms, sand, about one mile off-shore. The coast then trends north-eastward, 9 miles to the mouth of Jaihûn chai; the 5-fathom line is from about
 20 half to $1\frac{1}{2}$ miles off it, and nearly 3 miles south-westward from the entrance to the river and $1\frac{1}{4}$ miles off-shore is a sandbank with 3 fathoms water, and 18 fathoms close seaward. An octagonal tower, three-quarters of a mile westward of Ayas town, bearing 28° true, leads about a mile eastward of the bank.

25 *Plan 58, Ayas bay or Mortalik.*

Jaihûn chai (ancient Pyramus) is marked by the high reeds along its banks and the surf which usually breaks on the bar at its entrance; the depth on the bar is variable, boats occasionally not being able to enter, but there are from 12 to 16 feet inside. The tidal rise
 30 here is 3 feet. The river is about 80 yards wide, and the country around and inland abounds in wild boar, ducks, and woodcock. There is a ferry barge about 22 miles up the river capable of conveying several camels across at a time.

The entrance to the river is considerably south-westward of its position when surveyed in 1858, and the shoal water in the locality is said to have extended seaward since that survey. The sea is much dis-
 35 coloured by the discharge from the river and has an appearance of shallows.

In April, 1880, there was a depth of 3 feet on the bar.

40 The Jaihûn is formed by the junction of the Sugutlû, which rises east of el Bostan; the Khurman su, which rises to the north and flows along the eastern edge of the Binboa dagh; the large springs south of el Bostan; and the Gök su, which rises near the ancient Cocussus. The river reaches the open country 7 miles west of Marasch, where it is

General charts 2632, 2606, 2158b, 449.

Plan 58, Ayas bay or Mortalik. Var. nil.

joined by the Ak su; it then bends to the west, and passes through a remarkable defile between the Taurus and Ghiawúr dagh. The river is joined by many important tributaries, and is navigable as far as Missis, a distance of about 33 miles. 5

Caution.—The shoals formed by the alluvial deposits are extending seaward from the mouth of the river.

Water.—Good fresh water can be obtained from the river, as by examining the bar a passage in can generally be found, but the river water has been found brackish 5 miles from its mouth in autumn owing to the stream then being slow. To water here anchor near the entrance of the river, in 8 fathoms, with Ayas fort (*Lat. 36° 46' N., Long. 35° 47' E.*) bearing 57° true, and the end of the Jaihûn spit 175° true. 10

A creek leading from the river, about 6 miles within its entrance, into Ayas bay, has a 10-foot channel, and water might be procured there instead of from the main river, which cannot be entered with south-east winds. 15

AYAS BAY (Mortalik).—The entrance to the bay is between the mouth of Jaihûn chai, and the point on which is Ayas town, 5 miles north-eastward; it extends about 6 miles westward, the western part being very shoal, with numerous lagoons on its shores. The land to the westward is low undulating thickly-wooded hills, but to the north-westward the hills rise to Dedeh dagh (Crag), 1,400 feet high, in remarkable rocky pinnacles, and Jebel Nur (Sharp peak), an abrupt peak, 2,350 feet high, which from the southward is wedge-shaped. 25

The north shore of the bay is cliffy, with a dry uncultivated plain stretching to the foot of the Taudi range, which rises to heights of 1,450 and 1,995 feet, and runs nearly parallel to the coast. 30

Spit.—An octagonal tower stands on the shore three-quarters of a mile westward of the town. A rocky spit, a little over a cable wide, extends $1\frac{4}{10}$ miles south-westward from the tower; it has depths of from 4 to 5 fathoms, but near its outer end is a head with $3\frac{1}{4}$ fathoms. Dedeh dagh, in line with Bittern point, bearing 290° true, leads southward of the spit. 35

Bittern point, near the middle of the north shore of the bay and 4 miles westward from Ayas town, projects about 3 cables from the shore line, is 90 feet high, and cliffy. A reef, which dries from one to 3 feet, and has depths of from $2\frac{3}{4}$ to 3 fathoms close to its outer part, extends 3 cables south-westward from the point. 40

General charts 2632, 2606, 2158b, 449.

Plan 58, Ayas bay or Mortalik. Var. nil.

A rock, with 5 feet water, lies half a mile westward from Bittern point, and the ground is foul and uneven for nearly a cable southward of it.

- 5 **Anchorage**.—Ayas bay affords anchorage in from 4 to 10 fathoms, stiff mud, sheltered except from east and south-east winds, which seldom blow for any length of time.

Between the reef extending from Bittern point and the 5-foot rock westward of it, with the octagonal tower just open of the point, there
10 is anchorage for small vessels in $3\frac{1}{2}$ fathoms, soft mud. The holding ground in this part of Ayas bay is considered to be generally good, but vessels sometimes drag their anchors.

Large vessels anchor in 6 fathoms three-quarters of a mile southward of Bittern point; the anchor sinks quickly into the soft mud.

- 15 Northerly winds cause the water to fall $2\frac{1}{2}$ feet. During winter, north-east gales commence with little warning.

Directions.—From the southward pass one mile eastward of the entrance to Jaihûn chai, and keep the octagonal tower bearing northward of 20° true until Dedeh dagh bears 302° true, when steer
20 north-north-westward for Bittern point, and anchor as above directed.

The lead should be constantly used. Bittern point in line with a conspicuous gap in the second range of hills, 331° true, leads about 3 cables eastward of the 5-fathom edge of soundings off Jaihûn chai.

- From the northward bring Bittern point in line with the south-
25 west extreme of Dedeh dagh, bearing 290° true, which leads nearly half a mile southward of the spit extending south-westward from the octagonal tower; then steer westward until Dedeh dagh bears 296° true, when a small tableland in the first ridge of hills westward of the bay is a little open to the northward of the dagh; this mark leads to the
30 anchorage.

Landing.—The best landing place is at a dilapidated pier under a tower north-westward of Bittern point, but it is only available for small boats, as the water is very shoal.

Plan, Port Ayas, on sheet 2791.

- 35 **Ayas town** (ancient *Ægæ*) (*Lat. $36^\circ 46'$ N., Long. $35^\circ 47'$ E.*), situated within the walls of an old fort, is inhabited by a tribe of Turcomans; it is a wretched place, and is very unhealthy during summer and autumn. View on plan 2791.

Harbour.—Eastward of the town is a small harbour, with from
40 3 to 15 feet water, situated inside ancient moles built of large stone blocks, on the northern of which are the remains of a massive building. The harbour is fast filling with sand, but there is still sufficient water, with complete shelter, for small country vessels.

General charts 58, 2632, 2606, 2158b, 449.

Plan, Port Ayas, on sheet 2791. Var. 0° 10' E.

Supplies are obtainable from Alexandretta. During winter wild fowl resort to the lagoons, wild boar, hares, and partridges are also very numerous, and hyenas and jackals are occasionally met; fish and turtle are plentiful and easily caught with the seine. Good water may be obtained from streams on the north side of Ayas bay, and generally also from the Jaihûn. There is no coal. 5

Chart 2632, Gulf of Iskanderûn to Markhab.

The COAST from Ayas town trends north-eastward $14\frac{1}{2}$ miles, to the north extreme of the gulf. On a low promontory 5 miles north-eastward of Ayas are the remains of a small fortress, some say the Castabolum of the Romans, which others place 8 miles farther north-eastward. The coast then rises in undulating hills from 400 to 600 feet high, interspersed with sandy bays. On a low table hill, $8\frac{1}{2}$ miles from the promontory, are the ruins of an ancient fort, and a little south-westward of it are some other ruins, supposed to be Castabolum, above mentioned. Along the range of hills to the northward of the table hill are the remains of a fine aqueduct; running $1\frac{1}{2}$ miles up the valley it crosses it on arches, one being a gateway across the high road to Adana, which is said to be the Amanicæ Pylæ of the Greek historians and geographers; the aqueduct winds round the foot of the hills east-north-eastward to extensive ruins in the middle of the Plain of Issus, and then becomes lost. 10 15 20

The coast from the head of the gulf (*Lat. 36° 56' N., Long. 36° 0' E.*) trends south-eastward in an unbroken line of sand and shingle, 13 miles, to Bayas. There is a tumulus about 3 cables within the beach, $8\frac{1}{2}$ miles from the head of the gulf. 25

Plain of Issus, on the north-east shore of the head of the gulf, is some 30 square miles in extent, marshy near the sea, and uncultivated; during winter, numerous Turcoman and Arab tribes pitch their tents here for the rich pasturage it affords their flocks. There is a conspicuous white guard-house at the western end of the plain. 30

The plain was the scene of the celebrated battle which decided the fate of the Persian empire under Darius, and Alexander the Great gained western Asia. Two tumuli, situated a short distance from the beach, are supposed to mark the spot. 35

Deli chai, or Mud stream (ancient Pinarus or Issus) flows west-south-westward from Ghiawûr dagh and into the sea 10 miles from the head of the gulf. The road crosses it by a bridge near its mouth.

A large square yellow shed, with a red roof, is situated on the north bank, at the mouth of the Deli. Anchorage has been obtained in 8 fathoms water, sand bottom, with the shed just mentioned bearing 28° true, distant $8\frac{1}{2}$ cables, and Bayas tower 151° true. 40

General charts 2606, 2158b, 449.

Chart 2632, Gulf of Iskanderún to Markhab. Var. 0° 10' E.

Koi chai, or Village stream, falls into the sea about half a mile further south-eastward. A plain, which extends about 9 miles northward from Bayas, and about 4 miles inland, is well cultivated to the foot of the hills.

Bayas (Baïæ of the Romans), a fortress and village situated amidst groves of trees at the foot of the steep craggy Ghiawúr dagh, is deserted and falling into ruins. It appears to have been a most formidable and important position, massive buildings still exist.

The ancient port is now partly inland and filled with sand and stones; the moles in the sea are still visible; northward of it are the ruins of a square tower. There is open anchorage off the port in from 8 to 10 fathoms, coral and sand, but from these depths the water shoals quickly towards the shore. A sounding of 6 fathoms was obtained by H.M.S. *Astræa* in 1897, with Bayas tower bearing 126° true, distant $2\frac{1}{4}$ miles; the depth increased gradually to 10 fathoms one mile south-westward, and there are depths of 7 and 8 fathoms about half a mile south-eastward.

The coast from Bayas trends southward $7\frac{3}{4}$ miles, to Mukir el Khan, the north point of Iskanderún bay. Merkez village is situated about 4 miles southward of Bayas, and $1\frac{1}{2}$ miles inland, and Sari Sakliyah village is near the shore, nearly 2 miles further southward. Kalatissia, a fortress of the Middle ages, in ruins, is half a mile south-eastward of Sari Sakliyah, on the slope of a low range of hills.

On a rocky cape about half a mile south-westward of Kalatissia are the Pillars of Jonas (ancient Pylæ Cilicia), called by the Turks Sakal tutan, or Beard catcher, which are the ruins of a fine limestone arch.

Plan 2188, Iskanderún or Alexandretta bay.

ISKANDERÚN or ALEXANDRETTA BAY.—The shore of the bay, from Mukir el Khan (*Lat.* $36^{\circ}38'N.$, *Long.* $36^{\circ}11'E.$), trends southward 2 miles, and then turns south-westward three-quarters of a mile, and west-north-westward three-quarters of a mile to its western point. The town and port are situated on the south-western shore of the bay.

LIGHTS.—Lights are exhibited from a small white hut with a red roof, surmounted by a skeleton iron mast, 20 feet high, situated about 3 cables south-westward of the western point of the bay.

A light is exhibited from the end of the Custom-house jetty.

Anchorage.—Alexandretta bay is the safest anchorage on the coast of Syria, the only winds which blow home being northerly, and these, although they occasionally interrupt landing for a few hours, are never strong enough to cause a vessel with good anchors and cables to drag. Anchor as convenient; a good position for a large

General charts 2632, 2606, 2158b, 449.

Plan 2188, Iskanderún or Alexandretta bay. Var. 0° 10' E.

vessel is in about 13 fathoms water, with the British Consulate flag-staff bearing 192° true, distant half a mile, and there is also anchorage in 6 fathoms, with the outer end of the Custom-house pier bearing 215° true, distant 3 cables; the bottom is stiff sand and mud. The anchor should be sighted occasionally, as the winds are generally very variable. 5

Directions.—In approaching Alexandretta from the westward, especially at night, do not round the western point of the bay closely, as the water shoals suddenly off it, and the distance of the coast is very difficult to estimate, on account of the high land behind. 10

Alexandretta (Iskanderún) town (*Lat. 36° 36' N., Long. 36° 9' E.*) is situated on the low shore eastward of the lighthouse, and is surrounded by swamps which produce intermittent fevers during summer, but the sanitary condition has been much improved by drainage. The town contains some tolerable buildings, as the Custom-house, store-houses, and the residences of the Vice-Consuls; the houses generally are one storey high, and the streets are narrow. 15

The Government buildings, the Roman Catholic church, the minaret of the mosque, and the black chimney of a factory eastward of the town are conspicuous. There is a square ruined house on the low western point of the bay, and close westward of it is a barrack with castellated roof, which is noticeable from the westward; further westward is a factory. View on plan 2188. 20

The population in 1906 was about 12,000, but the town is almost deserted by its inhabitants during summer, when it is unhealthy. 25

The town is the Port of Aleppo (Haleb), to which place there is a road nearly 100 miles in length; it goes through Beilan pass, 6 miles southward of the town, at a height of 1,580 feet. The road is often out of repair, and almost impassable after winter rains for vehicles, of which there are few, merchandise being carried by camels. 30

Harbour works.—Important harbour works are proposed.

Piers.—There are seven small piers on the shore of the bay close to the town, which afford accommodation for loading and discharging cargo from lighters, but the water is very shoal at their outer ends; except the new Custom-house pier, they are built of wood on steel rails for piles. 35

The new Custom-house pier, 25 yards east of the old one, is 360 feet long, 36 feet broad, about 10 feet high, and has 5 feet water at its end. It is strongly built on crossed steel girders, with a wooden floor, and has two cranes, the one at the end being a steam crane of 1½ tons. There is a landing at the inner end of the pier, about 5 feet above water. The Custom-house is at its inner end. 40

General charts 2632, 2606, 2158b, 449.

Plan 2188, Iskanderûn or Alexandretta bay. Var. 0° 10' E.

The usual landing places for boats of vessels of war are on the beach, in front of the Consulate (*Lat. 36° 36' N., Long. 36° 9' E.*), and the new Custom-house pier, but this pier has a bank with 3 feet water
5 off its outer end, so it is necessary for steamboats to bring in a small boat in tow. With northerly winds or swell there is a break on the bank and a strong easterly current off the pier; under these circumstances boats going to the pier should turn to seaward outside the breaking water, back in, and get a line ashore as quickly as possible.

10 A small wooden pier projects 24 yards from the shore, 2 cables eastward of the lighthouse, and there is a depth of 6 feet at its outer end; it belongs to the factory close-to.

Winds.—Fine weather, with light south-westerly winds, and land and sea breezes, prevails from the beginning of May till the middle
15 of September. Thence to the end of December is the rainy season, calms and light airs prevailing, with frequent rain. From the beginning of January till the middle of February the weather is usually fine, but interrupted by northerly gales, and although these blow home into the bay, owing to the short fetch from the northern part of the Gulf
20 of Iskanderûn, they do not cause a very heavy sea, but they raise a surf on the beach which prevents landing. A good sign of the approach of a northerly gale is a collection of fleecy clouds over the Plain of Issus, and the disappearance of these clouds indicates a cessation of the wind. The gales usually commence at sunrise or sunset,
25 and last about 24 hours, there being a lull about noon, and also just after sunset, when landing is usually possible. From the middle of February to the end of March, southerly and south-easterly winds prevail, with occasional south-westerly winds, which blow with great force in the gulf, but are not felt in the bay, smooth water extending
30 about a mile from the anchorage.

— In April, calm and light airs prevail, with strong easterly gales, known as “raghiehs,” which are followed by strong westerly winds. The raghieh is not felt with any force at the anchorage, owing to the mountains to the eastward, but it blows into the gulf, northward of
35 Ras el Khansir, through Beilan valley, and also into the Bay of Antioch, through Orontes river valley.

Trade.—The imports are principally manufactured goods, drugs, indigo, copper, leather and hides, sugar, silk manufactures, coffee, wine and spirits, provisions, metals, iron ware, tobacco, specie,
40 jewellery, petroleum, and cloth; the exports, wool, cotton, grain, pistachio nuts, leather and hides, liquorice, native manufactures, butter, silk cocoons, copper, specie, and cattle. Antimony, manganese, chrome, boracite, and bitumen are found in the mountainous country near Alexandretta. The value of the imports in 1913 was £930,478, and
45 that of the exports £931,813.

General charts 2632, 2606, 2158b, 449.

Plan 2188, Iskanderún or Alexandretta bay. Var. nil.

Shipping.—In 1913, 441 steam, and 851 sailing, vessels, with aggregate tonnages of 673,877 and 6,205 tons, respectively, entered the port; of the steam vessels, 136 of 172,246 tons were British.

Supplies.—Cattle, vegetables, and poultry can be obtained. 5
Water is supplied to the town from two copious springs, which issue from a low hill about a mile to the southward; it has to be brought in on donkeys.

Water for shipping is sent off in boats carrying 3 tons on application to the Harbour authority, and it can also be obtained, except 10
during westerly winds, from a mountain stream, about 2 miles northward of the town.

Repairs.—There are no facilities for repairs.

Coal.—The Anglo-Syrian Trading Company, Limited, of Manchester, can supply any quantity of coal and patent fuel if from 30 15
to 35 days' notice is given. No stock is maintained.

Communication.—A railway from Alexandretta to Toprakaleh, a distance of 32 miles, was opened for traffic in 1913. There is telegraphic communication.

Chart 2632, Gulf of Iskanderún to Markhab.

The COAST from Alexandretta lighthouse (Lat. $36^{\circ} 36'$ N., Long. $36^{\circ} 9'$ E.) trends south-westward 25 miles, to Ras el Khanzir, and is plains, with several scattered villages, near the sea, rising to thickly-wooded hills, and some 6 miles inland to mountains from 4,000 25
to 5,000 feet high.

Arsús (ancient Rhosus) is a small village, about 17 miles south-westward of Alexandretta lighthouse, and on both sides of a shallow stream flowing into the southern part of a bay, the entrance to which is 2 miles wide; the ruins of the ancient walls of the town are still visible on the south-west side. A white church or tomb stands near the 30
north-eastern point of the bay, which is low and rocky, whence the shore becomes low sharp peaked hills. The south-western point of the bay is small and projects north-westward; on it is a large white house with a red roof. The bay affords good summer anchorage in $4\frac{1}{2}$ fathoms, sand, inside a rocky ledge of 3 fathoms, extending about 35
a mile south-westward from the north-eastern point. Much wood is exported from here. Burunli, 4 miles southward of Arsús, also affords temporary anchorage to vessels loading with wood from the hills in the locality. The coast for some 6 miles on both sides of Arsús should not be approached nearer than one mile, as there are several outlying 40
patches of rock.

Ras el Khanzir (ancient Rhossicus Scopulus), the western termination of a ridge of the Alma dagh, is high and steep. The

General charts 2632, 2606, 2158b, 449.

Chart 2632, Gulf of Iskanderûn to Markhab. Var. nil.

land rises to the height of 5,474 feet, 3 miles east-south-eastward of the ras, which has the appearance of a boar's snout from seaward. On the mountains in the vicinity are forests of oak, fir, and box-wood.

- 5 About 2 miles southward of the ras is a cliffy point, off which a rocky ledge extends south-westward nearly three-quarters of a mile; there is a rock awash at its outer end. In the vicinity of the ledge keep $1\frac{1}{2}$ miles off the land; the green hills westward of Arsûs open north-westward of Ras el Khansir, bearing about 46° true, leads north-
10 westward of the ledge.

- ANTIOCH BAY** lies between the cliffy point, 2 miles southward of Ras el Khanzir, and Ras el Bazit, 26 miles to the southward, and it extends eastward 9 miles. The 100-fathom contour line is 2 miles off-shore at the mouth of Nahr el Aasi, while $5\frac{1}{2}$ miles further
15 southward it approaches to half a mile from the shore.

- The shore from the point southward of Ras el Khanzir trends south-south-eastward 19 miles to the head of the bay; southward to Ras el Mina, a distance of $11\frac{1}{2}$ miles, it is long beaches with occasional cliffs and outlying rocks, none of which, however, are more than
20 3 cables from the shore. The land is steep and thickly wooded, and rises rapidly to Jebel Musa range, the summit of which, 2,860 feet high, is about 3 miles north-north-eastward of Ras el Mina. There are numerous deep ravines on the western slope of the range down which streams run during the greater part of the year.

- 25 **Ras el Mina** is well defined and conspicuous; a small white islet and several rocks lie off it; a plain extends from the ras to Nahr el Aasi, 5 miles southward.

- Seleucia.**—The extensive ruins of the ancient city and port of Seleucia Pieria (*Lat. $36^\circ 8' N.$, Long. $35^\circ 55' E.$*) are situated immediately to the southward of Ras el Mina.
30

- The city stood partly on the plain and partly on the lower slope of a spur of Jebel Musa (ancient Mons Pieria), whence the name of Seleucia. The site, formerly occupied by buildings, is about 4 miles in circuit; the ruins are massive walls, a theatre, sarcophagi and rock
35 tombs cut in the cliffs, and having a white appearance, are noticeable from a distance seaward.

- The port was on the level ground westward of the city, and was a remarkable work. It was a great dock excavated in the plain and connected by a canal with the sea; the entrance is marked by two
40 moles of immense blocks of limestone.

But a more remarkable work was an excavation immediately northward of the port through the side of the mountain, and leading from the upper part of the ancient city to the sea. It was alternate cuttings, 120 feet deep and 22 feet wide, and tunnels, 24 feet high, carried

General charts 2606, 2158b, 449.

Chart 2632, Gulf of Iskanderûn to Markhab. Var. nil.

through compact tertiary limestone for a distance of 1,048 yards. Its eastern end, about 30 feet above the sea, terminates in a ravine or torrent bed, across which a strong dam was built to direct the stream into the tunnel. The object of this work was to turn off the waters coming down the mountains southward of the town, and protect the city and the port from floods. 5

Two miles southward of Seleucia and near the beach, is a conspicuous white domed nebi or tomb, dedicated to Khudr or St. George.

Landing on the beach in this locality is sometimes dangerous on account of the heavy surf. 10

Suweidiya village, $1\frac{1}{2}$ miles inland of the tomb just mentioned, is marked by a cluster of poplar trees, and surrounded by orchards and mulberry plantations. There is a factory worked by steam here, and large quantities of silk and grain are produced, and chiefly sent to Aleppo. 15

Nahr el 'Aasi, or Orontes river (ancient Axius).—The mouth (*Lat.* $36^{\circ} 4' N.$, *Long.* $35^{\circ} 57' E.$) of the Nahr el 'Aasi, or Orontes river is near the middle of a long line of beach; the river is a sluggish stream about 100 yards wide and 9 feet deep within the bar; there is generally a depth of from 3 to 5 feet on the bar, but at times in summer it is difficult to enter in a small boat. In winter, vessels of about 100 tons enter and proceed about 3 miles, at which distance the river is fordable in summer. 20

The river from its source in the northern portion of the valley of Cœle-Syria, which is 4,000 feet high, flows northward 12 miles along the base of the Lebanon; then it makes a bold sweep westward till within 3 miles of Antioch, where it is joined by the Kara su; here it turns south-westward to the sea through a rich plain and valley between Akkra and Alma dagh ranges. The plain affords excellent grazing, and abounds in fruit, especially pomegranates and grapes; hares, partridges, woodcock, francolin, snipe and quail are plentiful. 30

Anchorage.—The usual anchorage for vessels communicating with Antioch is off Nahr el Aasi bar, in 9 fathoms, mud, half a mile from the shore, with Khudr nebi 358° true. 35

The anchorage is open to north-west, through west, to south-west winds, and a heavy swell rolls in which breaks on the bar.

Antioch (Antákiyeh of the natives), on the left bank of the river, and distant 13 miles from the sea direct, or 20 miles by the course of the stream, is situated at the western foot of Mount Silpius, a craggy hill, 1,200 feet high. On Mount Silpius are the ruins of remarkable towers 30 feet square, and ancient walls 50 feet high, extending over a circuit of 4 miles. The modern town, built within the walls and on the western face of the old city, extends irregularly 2 miles along the 40

General charts 2606, 2158b, 449.

Chart 2632, Gulf of Iskanderún to Markhab. Var. nil.

banks of the river, and is said to contain 6,000 inhabitants; it was nearly destroyed by an earthquake in 1872.

The principal products are fruits, sugar-cane, leather and goat's hair; it has manufactories of coarse pottery, cotton stuffs and silk culture.

The shore of the bay, from the mouth of Nahr el Aasi, trends south-south-eastward 3 miles, and then south-westward about 13 miles to Ras el Bazit (*Lat. 35° 52' N., Long. 35° 47' E.*).

10 **Kessab bay**, about 7 miles from Nahr el Aasi, is small. **Jebel Akkra** (ancient Casius), 2 miles eastward of it, is 5,800 feet high, rising abruptly, and is conspicuous from the southward. The upper part is entirely bare, but the base, and ridges which branch off to the eastward, are thickly wooded with oak and pine.

15 *Plan, Bay of Bazit, on chart 2632.*

Bazit bay lies between Pigeon islet, low and small, situated close to the shore, $2\frac{1}{4}$ miles south-westward of the south-western point of Kessab bay, and Ras el Bazit, 5 miles west-south-westward; vessels load chromate of iron here by lighters. A clifty point, $2\frac{1}{2}$ miles south-south-westward of Pigeon islet, on the summit of which is the white Nebi Khudr, is noticeable; there are several rocks above water within 2 cables of the shore eastward of the point. The ruins of ancient Posidium are situated about 2 miles west-south-westward of the point just mentioned; an ancient mole extends a short distance eastward from the ruins, and a ledge of rocks projects about 3 cables northward.

Anchorage.—The best anchorage is in 8 fathoms water, sand and mud bottom, off the ruins of the ancient town (Posidium), with the north extreme of Ras el Bazit bearing 271° true, and the mole end 236° true, distant about 5 cables. The water deepens rapidly outside the anchorage, there being depths of 30 fathoms about $1\frac{1}{4}$ miles off-shore.

Supplies.—Good water can be procured from a small river $1\frac{3}{10}$ miles eastward of the mole, and a few cattle can be obtained at the village situated on the eastern slope of the table-topped hill, south-eastward of Ras el Bazit.

Ras el Bazit (ancient Posidium) is low, but rises to a flat-topped limestone hillock, 165 feet high, 2 miles south-eastward, which, and a remarkable point one mile southward of the ras, crowned by a ruined watch tower, are good marks.

40 **Current.**—The current near Ras el Bazit usually sets northward at a rate of from one to $1\frac{1}{2}$ miles an hour.

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Chart 2632, Gulf of Iskanderûn to Markhab. Var. nil.

The COAST from Ras el Bazit trends south-south-eastward and south-south-westward 11 miles to Ras el Fasori, and generally is bold cliffs, with a few sandy beaches, the water being deep close-to. Sabagli, an open road 3 miles southward of Ras el Bazit, is visited by steam vessels to load chromate of iron. On the northern side of Ras el Fasori is a bay, with an islet, about 2 cables long east and west, and narrow, close to its southern shore, and about 6 cables northward of the islet, is a rocky patch with 3 fathoms water. 5

Plan 2514, Ras el Fasori to Ras Ziaret.

10

Ras el Fasori is a conspicuous promontory, and from it the coast trends southward nearly 3 miles, and then south-westward $3\frac{1}{4}$ miles to Ras Ibn Hâni, continuing bold cliffs, with some sandy beaches, and deep water close to.

The water off Ras el Fasori (*Lat. $35^{\circ} 40' N.$, Long. $35^{\circ} 45' E.$*) is very deep, there being 180 fathoms at the distance of less than half a mile. 15

About 3 miles southward of Ras el Fasori is a bay, half a mile wide at its entrance, which extends south-eastward 6 cables, the depth decreasing from 4 fathoms. 20

Minat-el-Kaban anchorage.—About a mile south-south-westward of the southern point of the bay just mentioned is a rocky point, with a monastery on it, situated between two sandy bays which are encumbered with rocks. There is anchorage off the point in 8 fathoms, white sand, with Ras Ibn Hâni lighthouse bearing 246° true, and the monastery 158° true; here there is good shelter, with smooth water, from the strong south-west summer breezes, and when communication at Latakiya is impracticable, letters and despatches can be forwarded there by horse in one hour. 25

Ras Ibn Hâni is the north-western point of a low peninsula which projects about $1\frac{1}{4}$ miles west-south-westward from the western of the two sandy bays just mentioned, with a width of half a mile; the coasts of the peninsula have been extensively quarried, and on its summit are the remains of a temple and other ruins. 30

From a distance southward the ras appears as a chain of small rocky islands, with the lighthouse well to seaward. 35

LIGHT.—A light is exhibited, at 46 feet above high water, from a white stone tower situated about 66 yards eastward of Ras Ibn Hâni.

The coast, from Ras Ibn Hâni, trends south-eastward $3\frac{1}{2}$ miles, and then southward $2\frac{1}{4}$ miles, to Ras Ziaret. On the southern side of Ras Ibn peninsula a bay, about one mile broad, extends nearly a mile east-north-eastward; it has depths of from about $1\frac{1}{4}$ to 2 fathoms, but a rocky reef stretches almost across the entrance. 40

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Plan, Latakiya, on sheet 2514. Var. nil.

LATAKIYA (ancient Laodicea), situated on the promontory of Ras Ziarèt, is an upper and lower town, separated by olive plantations and gardens. Marina, the lower town, stands on the north border of the ancient port, now fast filling up, and affording shelter only to a few small coasting vessels. View on plan 2514.

The population of the two towns, in 1913, amounted to about 20,000.

Light.—A light is exhibited from a white stone tower on the northern part of an old castle, situated on El Burj islet, in the northern part of the entrance to the ancient port.

Anchorage.—Anchor in from 8 to 10 fathoms, sand, with El Burj bearing about 90° true, distant from a half to one mile, but this anchorage being open should be used only temporarily.

Directions.—From about 10 miles seaward Latakiya appears as a flat island, with a grove of olive trees along the summit, and a high minaret on its south-western side. When approaching from either northward or southward do not shoal the water to less than 11 fathoms until near the anchorage. View on chart 2632.

Trade.—The principal exports are cereals, tobacco (bearing its name), eggs, dried figs, and the imports cotton and woollen goods, rice, coffee, petroleum, wheat, and flour.

Shipping.—In 1913, 130 steam vessels, of an aggregate tonnage of 180,808 tons, and 987 sailing vessels, of 11,817 tons, entered the port. Of these, 66 steam vessels, of 98,144 tons, were British.

Supplies.—Fresh provisions and fruit are obtainable at the market at moderate prices. Good water can be procured free. There is no coal in stock.

Communication.—There is telegraphic communication by land lines.

Chart 2632, Gulf of Iskanderún to Markhab.

The coast from Ras Ziarèt is rocky cliffs, with a sandy beach, for about a mile; then a sandy beach continues south-eastward nearly $8\frac{1}{2}$ miles; although the depth of water off it is moderate, anchorage is not recommended here, as it is open to southerly and south-westerly winds.

About $1\frac{1}{2}$ miles from the northern end of the beach is the mouth (Lat. $35^{\circ} 30' N.$, Long. $35^{\circ} 49' E.$) of Nahr Kebir, the largest river on the coast; it is crossed by a bridge about a mile within the entrance.

Tartarus bank is a rocky patch nearly a mile long north and south, its northern end lying about 195° true, $2\frac{3}{4}$ miles from Ras Ziarèt; it has from 14 to 18 fathoms water, and 32 to 45 fathoms

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Chart 2632, Gulf of Iskanderûn to Markhab. Var. nil.

around; the 100-fathom line is less than half a mile westward of the bank, and there is a confused sea in the locality during south-west gales.

This bank, and other ledges on the coast, are frequented by sponge 5
divers from Kalimno and Symi, in the Grecian archipelago.

The coast, from the southern end of the sandy beach just mentioned, trends southward $9\frac{1}{4}$ miles, to Ras Beldi el Melek, in a line of low cliffs, within which is an extensive and partly cultivated plain, gradually rising eastward towards the high range of hills which runs 10
parallel to the coast. The natives of this plain have a bad name, and should not be trusted.

Jebelli.—Nearly 4 miles from the commencement of the cliffs, and close to the coast, is Jebelli (ancient Gabala), a small wretched village built from the ruins of the old town. There are here a number of 15
excavated tombs in the rocks, the ruins of a magnificent theatre, and the remains of a small port.

The mosque at Jebelli is a good mark. View on chart 2632.

Rocks.—About three-quarters of a mile north-westward of Ras Beldi el Melek, and half a mile off-shore, are two low rocky islets 20
surrounded by rocks.

Beldi el Melek.—On the north side of Ras Beldi el Melek is the mouth of Nahr el Sin, a deep stream, which rushes into the sea through the rocks, where a vessel might water in fine weather. On its south bank and just within the ras is Beldi el Melek, the ruins of 25
the ancient Paltos, a heap of stones and rubbish with numerous columns.

The coast from Ras Beldi el Melek, a long, straight beach, trends southward $4\frac{1}{2}$ miles to Banias (ancient Balanea), a ruined site, similar in character to Beldi, lying at the northern base of a volcanic 30
hill 930 feet high.

Markhab castle, on the summit of the volcanic hill, is a conspicuous fortress, capable of accommodating some 7,000 troops, and the centre of numerous villages inhabited by a lawless set. On the western spur of the hill, and about a quarter of a mile eastward of Ras el 35
Burj (*Lat. $35^{\circ} 10' N.$, Long. $35^{\circ} 55' E.$*), its extreme, is a square black tower between 50 and 60 feet high. Views on chart 2632. A little distance from the shore, with the middle of Markhab castle in line with the tower, is a curious spring of fresh water, which rises to the surface from a depth of 40
18 fathoms with considerable force and has the appearance of breakers; the water at the surface is brackish.

General charts 2606, 2158b, 449.

Chart 2633, Markhab to Ras en Nakura. Var. nil.

The COAST from Markhab trends southward 16 miles, to Tartus, and is mostly shingly beaches with outlying rocks and shallow patches; it should not be approached nearer than 2 miles.

- 5 **Ras el Hassan**, 10 miles from Markhab, is rocky, and Ipsiri islet, three-quarters of a mile south-westward of it, is small, low and rocky. A rocky patch with 3 fathoms water lies $2\frac{3}{4}$ miles 189° true from Ipsiri islet, and is the commencement of a line of rocky patches, which, with from 2 to 5 fathoms water, extends southward to abreast
10 **El Kulat** at from $1\frac{1}{4}$ to 2 miles from the shore.

Plan 2765, Ruad island anchorage.

- El Mina**, about half a mile northward of Tartus, is a shallow basin, probably an ancient port; small country boats and spongers shelter here. On the east side of El Mina is a pottery, a large building.
15

- Tartus** (Tortosa of the Middle ages, and Antaradus of the Greeks) is a walled town of considerable extent, on the coast, with some 3,000 inhabitants. The land side is defended by a double wall with towers; about 100 yards outside and south-eastward of the town
20 is a cathedral, 92 feet high, built in Gothic style, and conspicuous from seaward.

The coast from Tartus trends south-south-eastward $21\frac{1}{2}$ miles, to Nahr el Arka, and is a shingle beach, bordered by shoal water, with off-lying rocky patches.

- 25 **RUAD ISLAND** (Arvad of Scripture, and Aradus of the Greeks) (*Lat. $34^\circ 52'$ N., Long. $35^\circ 51'$ E.*), 2 miles south-south-westward of Tartus, is 4 cables long north-north-west and south-south-east, 2 cables broad, red sandstone, and 79 feet high; it affords the best shelter along the coast for vessels of less than 15 feet draught.
30 A large dismantled fort crowns the middle of the island, with smaller ones at each corner; these were built to protect the inhabitants from the attacks of Greek corsairs. On the western side of the island are the remains of a double Phœnician stone wall; on the north-west point a portion upwards of 30 feet high still exists, and two ancient moles,
35 constructed of huge stones, extend about 100 yards from the eastern side; between these was another mole, thus forming two harbours. There are about 3,000 inhabitants, whose chief occupation is sponge diving, those obtained here being very large and of fine quality. Water is obtained by collecting rain in large tanks cut out of the
40 rock.

LIGHT.—A light is exhibited, at 92 feet above high water, from the highest tower of Ruad island fort.

General charts 2632, 2633, 2606, 2158b, 449.

Plan 2765, Ruad island anchorage. Var. nil.

Shoals.—Within three-quarters of a mile northward of the island are five rocky patches, with $2\frac{1}{4}$ and 3 fathoms water.

Anchorage.—In approaching the anchorage on the north-eastern side of Ruad island, pass close northward of the island, which is bold, to clear a rocky patch with 3 fathoms water situated a cable northward of it; then steer east-south-eastward and anchor in from 5 to 6 fathoms, sand and mud, good holding ground, with the minaret just open northward of the central mole, bearing 250° true. Small vessels anchor nearer the island. Strong south-westerly winds send in a very heavy swell. 5 10

There is a 3-fathom passage southward of the island, but from the rocky uneven nature of the bottom it is not recommended.

Supplies.—Beef and vegetables can be obtained from Tartus, and turtle and fish are plentiful. Good water can be procured from a mainland stream $1\frac{1}{4}$ miles north-eastward of the anchorage; there is a small hillock on the south bank of the stream. 15

Reefs and islets.—A line of rocky ground, with from $1\frac{1}{2}$ to 4 fathoms water, on which a heavy sea breaks in westerly gales, extends about 164° true, 7 miles from Ruad island, and $1\frac{1}{2}$ miles off shore. The following four small, and extensively quarried, rocky islets are situated on the reefs: El Abas, 14 feet high, distant 2 miles; Abu'l Faris, 7 feet high, nearly 4 miles; El Fana and Makrud (*Lat. $34^\circ 47'$ N., Long. $35^\circ 52'$ E.*), 7 feet high, close together, $4\frac{1}{2}$ miles from Ruad. As the depth outside the reefs increases rather quickly, they should not be approached to less than 14 fathoms. 20 25

Ruins of Marathus.—On the mainland, about $2\frac{3}{4}$ miles south-eastward of Ruad island, are two monuments; the higher, about 32 feet high, is a large cylindrical block on a square pedestal, surmounted by a cone-shaped stone; the other, 20 feet high, is two blocks; the lower block, which has rudely sculptured lions at the angles, being surmounted by a single stone with a domed top. In the vicinity are extensive quarries and several mausoleums and tombs, the ruins of a temple hewn out of the rock, and fragments denoting the site of a large city, possibly the ancient Marathus. 30 35

Chart 2633, Markhab to Ras en Nakura.

The coast.—At Marathus the hills recede inland, leaving a large cultivated plain studded with tumuli, on most of which are villages, between them and the sea. Haman village (*Lat. $34^\circ 45'$ N., Long. $35^\circ 56'$ E.*) is situated on the coast, $5\frac{1}{2}$ miles southward of Marathus. Five rivers intersect the plain, winding westward through the opening in the mountains (known as the entrance of Hamath), between Nusairiyeh range and Jebel Akka, the northern peak of Lebanon range. Nahr el Kebir (ancient Eleutherus), the largest of the 40

General charts 2633, 2606, 2158b, 449.

Chart 2633, Markhab to Ras en Nakura. Var. nil.

rivers, flows into the sea 14 miles southward of Ruad, and Sheik Jabber, on the north side of its entrance, is a remarkable nebi.

Shoals.—A shoal, with 2 fathoms water, lies 2 miles south-westward from Haman village; it is a continuation of the line of reefs from Ruad island, which extends along the coast southward to El Kulat. There is a 4-fathom patch $1\frac{1}{4}$ miles southward of the shoal just mentioned, and a 4-fathom patch $5\frac{1}{4}$ miles southward of Haman village. The coast should not be approached nearer than $2\frac{1}{2}$ miles, nor to less than 15 fathoms. Ruad island open westward of Makrud or El Abas islets leads westward of but close to the shoals.

El Kulat, $3\frac{1}{2}$ miles southward of Sheik Jabber and $1\frac{1}{2}$ miles inland on the summit of a tumulus, is a large and conspicuous ruin, 142 feet above the sea.

The coast from the mouth of Nahr el Arka trends southward and west-south-westward 3 miles to the mouth of Nahr el Berid.

Plan 1576, Tripoli roadstead.

Kalat Hakmone (ancient Orthosia) are two mounds covered with ruins, lying at the mouth of Nahr el Berid; here the high land again approaches the sea.

The coast from Kalat Hakmone trends south-westward 4 miles to Ras el Lados, a rocky bluff 129 feet high, which is the termination of one of the spurs from Jebel Turbul, a round-topped mountain, 2,314 feet high, with a village on its eastern shoulder; the mountain is a good mark. The coast from Ras el Lados trends westward $4\frac{1}{2}$ miles, and terminates in the low El Mina point.

TRIPOLI (ancient Tarabulus) (*Lat. $34^{\circ} 27' N.$, Long. $35^{\circ} 49' E.$*), situated about a mile within the mouth, and on both banks of Nahr Abu Ali, or Kadisha river, which flows into the sea $2\frac{3}{4}$ miles westward of Ras el Lados, is a well-built town surrounded by luxuriant gardens; the population, including El Mina, is estimated at 35,000. A large and conspicuous castle stands on a hill, 197 feet high, in its southern part, but it is fast falling into ruins. El Mina or Scala of Tripoli is built on the low promontory which terminates in the north-west point of the coast. Along the coast westward of the mouth of Nahr Abu Ali is a line of square towers; the eastern one at the mouth of the river is scarcely visible from seaward, being obscured by trees; the one next westward, named the Tower of Lions, is 76 feet high, and conspicuous from the approach to the anchorage.

Rocks.—A chain of low rocks and islets extends $3\frac{3}{4}$ miles north-westward from El Mina point.

Channel.—There is a channel, nearly half a mile wide, with 6 fathoms least water, and navigable by steam vessels, between Sanani and Tares, two of the chain of islets extending off El Mina point.

General charts 2633, 2606, 2158b, 449.

Plan 1576, Tripoli roadstead. Var. nil.

LIGHTS.—A light is exhibited, at 67 feet above high water, from a tower surmounting a white dwelling, with a red roof, on the summit of Ramkine islet, the outer of the chain of rocks and islets just mentioned. 5

A light is exhibited from a round white building, with a green domed top, situated between El Mina Health office and Custom-house, but the lighthouse is not easily distinguished, owing to the background of white houses.

Anchorage.—Large vessels usually anchor in Tripoli roads with the Tower of Lions bearing about 165° true, distant nearly $1\frac{3}{4}$ miles, and the north extreme of Bellane, an islet 21 feet high, 236° true, in 7 fathoms water. Small vessels anchor with the Tower of Lions in line with Tripoli castle, 145° true, and the round tower on El Mina point in line with the chapel on Ras esh Shúka, in $3\frac{1}{2}$ fathoms, sand and weed. From the anchorage Ras esh Shúka is obscured by houses, unless the observer's eye is 26 feet or more above the sea. 15

In north-easterly gales there is anchorage south-westward of El Mina promontory, with the cemetery mosque bearing 59° true, distant $1\frac{1}{10}$ miles, and Tripoli castle 95° true, in 10 fathoms water. 20

Directions.—For Tripoli roads, from the southward, steer to pass half a mile or more westward of Ramkine islet lighthouse; then steer north-eastward till the lighthouse bears 180° true, when steer eastward until the Tower of Lions is in line with Tripoli castle bearing 145° true (view on plan 1576), and thence to the anchorage. 25

The large house or convent of Dar Natur in line with a remarkable notch near the eastern end of the table of Ras esh Shúka, bearing 203° true (view on plan 1576), leads through the channel between Sanani and Tares, passing about $1\frac{1}{4}$ cables from the shoals on each side; when Rankine islet lighthouse is in line with the north-east point of Sanani steer eastward until the Tower of Lions is in line with Tripoli castle and then direct to the anchorage. 30

At night, from the southward, do not shoal the water to less than 20 fathoms when rounding Ramkine islet light (*Lat. $34^{\circ} 30' N.$, Long. $35^{\circ} 45' E.$*); when the light bears 180° true, distant half a mile, steer 90° true, until the light bears 244° true; then steer 132° true, and anchor in 7 fathoms with El Mina light bearing 192° true, and Ramkine islet light 292° true. A small vessel can approach El Mina light when bearing 192° true, and anchor in 4 fathoms with Ramkine islet light bearing 305° true. 35 40

Landing is practicable at El Mina, except in strong northerly winds, at the Port office mole, or a mole westward of it, for boats of 5 feet draught, but the stones of the ancient mole, about 3 cables to the northward, must be avoided.

General charts 2633, 2606, 2158b, 449.

Plan 1576, Tripoli roadstead. Var. nil.

There is good landing for boats on the sand beach on the south-western side of El Mina promontory, to the southward of the ancient wall, during strong north-easterly winds.

5 **Trade.**—The exports are principally grain, silk, lemons, oranges, dried cocoons, skins, soap, and sponges, and the imports sugar, petroleum, salt, cotton threads, hides and leather, hardware, dry goods, cereals, and sundries. In 1913 the value of the exports was estimated at from £700,000 to £800,000, and that of the imports at £1,250,000.

10 **Shipping.**—In 1913, 688 steam vessels, of an aggregate tonnage of 1,091,837 tons, and 1,820 sailing vessels, of 2,018 tons, entered the Port of Tripoli.

Coal.—About 3,900 tons of coal and patent fuel are imported annually, and there are usually 1,100 tons in stock; coaling is performed by lighters, of which there are 30, of from 15 to 30 tons. There is a coal wharf 120 feet long, with a depth alongside of 6 feet.

Supplies.—Meat, vegetables, and bread are plentiful, and water can be procured from Nahr Abu Ali; boats can get close in, where they are sheltered by the sandy point from the strong south-westerly breezes. Good water can also be obtained free from a spring near the landing place, or it can be taken to a vessel in the anchorage by tank vessels.

Communication.—There is a railway from Tripoli to Homs, where it joins the line from Aleppo to Damascus and Medina. There is telegraphic communication.

The coast from El Mina point (*Lat. 34° 27' N., Long. 35° 47' E.*) trends south-south-eastward $2\frac{3}{4}$ miles, and is mostly a sand beach partly bordered by rocks; it then trends south-westward $1\frac{1}{2}$ miles, becoming rocky, and rises to Mar Yakub, 749 feet high, on which there is a monastery. A rocky patch, with $2\frac{1}{4}$ fathoms water, lies nearly three-quarters of a mile off-shore with the monastery bearing 122° true, and there are other patches of $2\frac{1}{2}$ and 3 fathoms inside it.

Chart 2633, Markhab to Ras en Nakúra.

The coast from westward of Mar Yakub trends west-south-westward 3 miles to Ras Natur, on which there is a large square building. One mile south-westward of Ras Natur is Burj Enfeh, a ruin, on a rocky islet close off a projecting point; on the southern side of the point is Enfeh village.

Il Hereh bay, between Ras Natur and Ras esh Shúka, $4\frac{1}{2}$ miles south-westward, extends $1\frac{1}{2}$ miles south-eastward, and is semi-circular in shape, the northern part near Enfeh village being rocky. Here a copious fresh water spring bubbles up from a depth of 14 fathoms,

General charts 2633, 2606, 2158b, 449.

Chart 2633, Markhab to Ras en Nakúra. Var. $0^{\circ} 10' W$.

and mixing with the salt water causes a smooth oily appearance, but sometimes there is a strong ripple, and it may look like a shoal.

Anchorage.—There is good anchorage, sheltered from the strong south-west summer breezes, in 9 fathoms, white sand, in the southern part of Il Hereh bay, off Mar Saman monastery (which is situated on the side of the cliff amidst thick foliage), with Burj Enfeh bearing 20° true. 5

LEBANON RANGE, or Jebel Libnan.—Jebel Akka, the northern peak of the range, is 6,980 feet high and situated 15 miles eastward of Jebel Turbul; after a slight bend south-eastward from Akka peak the range trends south-south-westward 70 miles. Southward of Jebel Akka the range falls, but 6 miles south-westward of the peak it rises again in a high bluff shoulder, $4\frac{1}{2}$ miles south-westward of which is Dhor el Khodib, 10,061 feet high, the highest peak of the range. The other principal peaks are Jebel Mâkmel, 9,996 feet, $2\frac{1}{2}$ miles southward of Dhor el Khodib; Jebel Sunnin, 8,162 feet, 18 miles eastward of Beirút; Jebel Keneiseh, 6,666 feet, 8 miles south-westward of Jebel Sunnin; and Tomat Niha or Sidon paps, 5,620 feet high, 13 miles eastward of Saida. These peaks are visible from seaward. 10 15 20

The Cedars of Lebanon are a group of trees situated on the western slope, 6,700 feet high, of the range westward of Jebel Mâkmel, and are visible from seaward in the vicinity of Ras esh Shúka. The source of Nahr Abu Ali is in the gorge southward of the cedars. 25

Ras esh Shúka, or Cape Madona (ancient Theuprosopon) (*Lat. $34^{\circ} 19' N$, Long. $35^{\circ} 40' E$*), is a projecting tableland, 618 feet high, with a chapel on its north-west edge; its sides are precipitous and wooded, with several white patches on its northern face (views on chart 2633, and view on plan 1576). 30

The coast from Ras esh Shúka trends south-south-westward $2\frac{1}{4}$ miles to Ras Selata, and from about three-quarters of a mile from Ras esh Shúka is bordered by rocky ledges; here the coast should not be closed to less than one mile.

Ras Selata has a tower on it, and is steep-to. 35

The coast from Ras Selata trends southward $15\frac{1}{2}$ miles to Ras Mâmeltein, and is rocky capes, the terminations of the high rugged spurs from the Lebanon, with small sandy bays; it has a barren aspect.

Batrun (ancient Botris), a mile southward of Ras Selata, is a small village; the remains of the ancient port are still visible. Vessels occasionally anchor off the village in 10 fathoms, sand. 40

Jebeil (ancient Byblus), $8\frac{1}{2}$ miles southward of Batrun, is a walled and trenched village, with towers at intervals on the walls,

General charts 2606, 2158b, 449.

Chart 2633, Markhab to Ras en Nakúra. Var. 0° 10' W.

situated at the base of a spur from the Lebanon, and has some 500 inhabitants. There is a high square tower in the middle of the village. The ancient port is nearly filled with sand and stones, but it still affords shelter to small coasting vessels, which carry on a considerable trade in tobacco. The landing place is in a small cove, north of the village.

Nahr Ibrahim (ancient Adonis), a considerable stream, flows into the sea about $3\frac{1}{2}$ miles southward of Jebeil; it rises in the high mountains of Akúra and Afka. The latter source is the scene of the fable of Venus and Adonis, whose tragic end, torn to pieces by a wild boar, gave rise to the popular idea that this river at certain seasons became purple from the blood of the victim; the ruin of a temple marks the spot.

About a quarter of a mile from the sea the river is spanned by a bridge, over which the road from Beirút to Tripoli passes.

Soundings.—Between Ras Burbara, which is situated about $7\frac{1}{2}$ miles southward of Ras esh Shúka, and Ras Mâmeltein (*Lat. 34° 1' N., Long. 35° 37' E.*), the 100-fathom line approaches in places to the distance of half a mile from the coast.

Plan, Juneh bay, on chart 2633.

Juneh bay, the port of the northern portion of the Lebanon, lies between Ras Mâmeltein and Ras et Tir, $1\frac{3}{4}$ miles south-south-westward, and extends a mile east-south-eastward. The northern and central parts of the bay are deep, but shoal water with rocky ground extends about a quarter of a mile off the southern part and Ras et Tir, which is low and shingly. The two conspicuous monasteries of El Ghuzir and Antonio stand on a precipitous spur of a mountain, 1,161 feet high, which nearly reaches the north-eastern shore of the bay. Juneh, a large village, is situated on the southern shore of the bay.

Anchorage can be obtained in summer in $4\frac{1}{2}$ fathoms water with Ras et Tir bearing 245° true, and the Custom-house 153° true, but large vessels anchor in 8 fathoms, sand bottom, with Ras et Tir bearing about 227° true, and the Custom-house 153° true.

Plan 1563, Beirút.

The coast from Ras et Tir trends south-south-westward $2\frac{1}{4}$ miles to Ras el Kelb.

Nahr el Kelb (ancient Lycus), which flows into the sea about 4 cables north-eastward of Ras el Kelb, is the largest stream, next to Nahr Abu Ali, on this coast. Northward of the river are several monasteries, situated on conical wooded hills. Mar Yusef el Burj, a fine monastery, is situated on a rocky peak, 505 feet high, on the left bank

General charts 2633, 2606, 2158b, 449.

Plan 1563, Beirút. Var. 0° 15' W.

of the river, and 3 cables south-south-eastward of the entrance; several Assyrian and Roman bas-reliefs and inscriptions are cut in the cliff in its vicinity, the former dating from 1400 B.C. Good water can be obtained here throughout the year; in summer there is very little water on the bar. During summer there is anchorage off the mouth in from 7 to 9 fathoms, mud and sand, with the water-mill bearing about 124° true. 5

JUN AL KHUDDR (St. George bay), the shore of which is entirely sand, extends between Ras el Kelb and Nahr Beirút, nearly 4 miles south-westward; it is the usual winter anchorage for vessels of war. The 100-fathom line approaches the shore of the bay, near the middle, to 1½ miles, and in the southern part of the bay the water shoals from 20 to 5 fathoms in about 3 cables. Several streams run into the bay. 10 15

Nahr Beirút is a small stream in summer, but swells into a river in winter, and is crossed by a bridge of seven arches about 4 cables from the entrance. A sandbank off the mouth of the river dries out to the rock inside Zier tem nahr; it appears to be extending, and the river to have made a new outlet. 20

Zier tem nahr is the middle of three rocks above water, which extend northward 2 cables from the western entrance point of the river.

The coast from the western entrance point of Nahr Beirút trends westward 3½ miles to Ras Beirút, and is a succession of small bays and rocky points. Quarantine point is 4 cables westward of the western point of Nahr Beirút, and from a point 1½ cables further westward, a line of rocks above and below water, the outer of which is named Sheshi, extends north-eastward 3 cables. 25

Mark.—About 2 cables south-westward of Quarantine point, and near the gas works, is a chimney, 175 feet high, which is very conspicuous. 30

BEIRÚT (Beyrout) (ancient Berytus) (*Lat. 33° 54' N., Long. 35° 29' E.*) is the most flourishing seaport of Syria.

Aspect.—The town, situated within the coast between Quarantine point and Ras Beirút, as seen from the sea, is most beautiful. An old wall encloses its more ancient part, in which are the bazaars, &c. The extensive suburbs are built on the slope of a terraced hill, and consist of numerous picturesque villas surrounded by gardens. Beyond these the mulberry groves cover the whole acclivity, extending a considerable distance on either side. 35 40

The land to the eastward rises suddenly to the height of 2,733 feet about 6½ miles from the town; on the summit here is Mar Ishâya

General charts 2633, 2606, 2158b, 449.

Plan 1563, Beirút. Var. 0° 20' W.

village, with, on the range to the south-westward, Brumâna and Beit Meri villages.

- 5 The land southward and westward of the town rises in remarkable red hills, about 300 feet high, of drifting sand, which, being blown by the strong south-westerly breezes in summer, is encroaching on the town. The hills are conspicuous from seaward.

Ras Beirút is low, but rises abruptly to the westernmost of the red hills, 332 feet high.

- 10 **LIGHTS.**—A light is exhibited, at 124 feet above high water, from a yellow stone tower with a white dome, 437 yards within Ras Beirút.

A light is exhibited from a red stone tower, on the extreme of the short arm, extending southward from the North mole.

- 15 A light is exhibited from a signal mast on the north extreme of the East mole when vessels are expected.

- Anchorage.**—The best anchorage is off the town, in from 11 to 13 fathoms, with the red stone lighthouse on the southern arm of the North mole bearing 227° true, distant $3\frac{1}{4}$ cables, and the chimney, 20 175 feet high, near the gas works, 121° true. The greater part of the anchorage is rocky, covered by sand or mud. In winter, during rough weather, in order to avoid the heavy ground swell, the best anchorage is in 36 fathoms water with the red stone lighthouse on the southern arm of the North mole bearing 170° true, distant $7\frac{1}{2}$ cables. 25 The anchorage is open from west to north, and between November and March, if the strong south-west gales, which are frequent, veer to northward of west in the squalls, be prepared to weigh and either go to sea or to Jun al Khudr, as the gale will probably shift to the north-west. Vessels must not anchor within a quarter of a mile from 30 the North mole head in the fairway to the harbour.

- Vessels lie in Jun al Khudr during winter in about 10 fathoms, with the outer island off Quarantine point, 261° true, in comparative safety, with little strain on the cables, owing to a strong offset during north-west and northerly gales, but a very heavy sea rolls in with 35 these winds, and breaks in less than 4 fathoms. The bottom is tough mud, in which the anchor soon becomes buried. It is said that during north-westerly gales there is sometimes a westerly current, causing vessels at anchor to lie with heads to the north-eastward.

Plan, Beirút harbour, on sheet 1563.

- 40 **Harbour.**—The harbour (*Lat. 33° 54' N., Long. 35° 30' E.*) is situated within two moles; the North mole extends 4 cables, 78° true, from Ras esh Shamiyeh, and an arm projects 65 yards, 168° true, from about 60 yards within its outer end; the East mole, the western side of which is the coaling wharf, extends $1\frac{3}{4}$ cables, 10° true, from Ras 45 bei Medawer. The entrance, between the East mole and the southern

General charts 2633, 2606, 2158b, 449.

Plan, Beirút harbour, on sheet 1563. Var. 0° 15' W.

arm of the North mole, is 160 yards wide. There is a depth of 7 fathoms in the entrance which gradually decreases to 3 fathoms, about half a cable off the southern side of the harbour, and thence to one fathom off the quays on that side.

Nearly all steam vessels, including those of large size, enter the harbour. There being insufficient depth alongside the coaling wharf, vessels of more than 21 feet draught require lighters to be placed inside them. Steam vessels over 400 feet in length are moored parallel to the North mole. Smaller vessels are moored close to each other parallel to the East mole with a hawser astern to a ring bolt or bollard on the Main quay, on the southern side of the harbour.

The railway runs on to the Main quay.

Beacon.—A stone beacon, painted black and white in horizontal bands, marks a rock, with $1\frac{1}{2}$ fathoms water, 75 yards north of the eastern end of the Custom-house quay.

Mooring buoys.—Three mooring buoys are placed in the northern part of the harbour, about 150 yards apart and 90 to 70 yards from the North mole, in depths of 5 to 8 fathoms. The moorings are of 2-inch cable, not in good condition; the north leg is secured to eyebolts sunk in the masonry of the breakwater. A star-board anchor must be down when secured to the buoys, head to the eastward. There are other mooring buoys in the south-eastern part of the harbour in shoaler water.

Plan 1563, Beirút.

Pilots.—Pilotage is not compulsory, but a pilot can be obtained by making the pilot signal. The services of a pilot appear to be unnecessary.

Directions.—From the southward, round Ras Beirút at a distance not less than half a mile, as a rocky ledge extends $1\frac{1}{2}$ cables off Ras el Ghara, its western point, and a strong current generally sets to the northward, which should be guarded against. After rounding the cape, do not anchor until the barracks on the slope of the hill over the town bear 160° true, to avoid a deep hole with over 100 fathoms, which approaches to $2\frac{3}{4}$ cables from the shore.

At night, when approaching Ras Beirút from the southward, do not shoal the water to less than 50 fathoms until Ras Beirút light bears 60° true, which leads north-westward of the ledge off Ras el Ghara. Then keep in not less than 20 fathoms until the light bears 180° true, when steer eastward, and anchor north-eastward of the North mole light as above directed.

Plan, Beirút harbour, on sheet 1563.

On a vessel approaching the harbour (*Lat.* $33^\circ 54' N.$, *Long.* $35^\circ 30' E.$), a boat, flying a "Blue Peter" in the bows, will indicate the position

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Plan, Beirút harbour, on sheet 1563. Var. 0° 15' W.

- to drop the anchor, the distance inside the entrance depending on the position of the buoy to which the stern is to be secured if going into the south-eastern part of the harbour, or of the moorings if going
5 into the northern part. Vessels of war before entering the harbour should ascertain if there is room.

Landing.—Boats of vessels of war land at the Health office steps in the harbour.

Plan 1563, Beirút.

- 10 **Beirút town** has wide streets, public buildings, and suburban residences of a European character. The population is estimated at about 150,000.

There is a good German hospital, where patients can be received at a charge of 5 francs daily.

- 15 The villages on the western slope of the Lebanon are much frequented by the European and native residents during summer, on account of the cooler air and more bracing climate. Aleih, 7 miles south-eastward of Beirút, where there are two hotels, is the most frequented; there is a railway station here, and also a post-office and
20 telegraph station.

The Custom-house, Captain of the port's office, and Health office are on the southern side of the harbour.

Quarantine.—Vessels must not communicate until they have obtained free pratique by sending to the Health office.

- 25 **Time signal.**—A time ball is hoisted at the tower of the main building of the American college (*Lat. 33° 54' N., Long. 35° 28' E.*), situated about 3 cables eastward of Ras Beirút lighthouse, at 19h. 55m. 0s., and dropped at 20h. 0m. 0s. local mean time, or 17h. 38m. 73s. Greenwich mean time. In case of failure, a blue flag
30 will be hoisted immediately, and the signal will be repeated at 21h. 0m. 0s. local mean time.

- Trade.**—The imports are chiefly cotton and woollen goods, metals, rice, sugar, leather, petroleum, silk stuffs, coal, coffee, flour, hardware, paper, preserved goods, wines and spirits, timber, tiles, iron and steel
35 bars, sheets, &c., and sundries, and the exports are silk, wool, cereals, oil, soap, dried fruit, cocoons and waste silk, hides and skins, liquorice and bitumen. In 1913 the value of the imports was £2,175,000, and that of the exports was £630,850.

- Shipping.**—In 1913, 1,011 steam vessels, of an aggregate tonnage of 1,747,691 tons, and 2,248 sailing vessels, of 14,527 tons,
40 entered the port.

Supplies.—Provisions are obtainable, and good spring water of Beirút Water Company can be obtained from a hose close to the land-

General charts 2633, 2606, 2158b, 449.

Plan 1563, Beirút. Var. 0° 15' W.

ing place, where boats can fill their tanks. Water can be supplied in tank boats up to 400 tons daily.

Coal.—About 15,500 tons of coal and patent fuel are imported annually, and there are usually about 4,300 tons in stock. Coaling is performed by lighters of from 10 to 60 tons capacity, of which there are about 30, at the rate of 400 tons a day. 5

There are two coaling wharves; the outer is about 450 feet long, with 17 to 25 feet alongside, and the inner is 295 feet long, with 6 feet alongside. 10

Communication.—A railway runs from Beirút to Rayak, Homs, and Aleppo, and connects with a line to Damascus at Rayak. There is also a light railway, 12 miles long, to Mâmeltein; it is being extended to Jebeil. There is a carriage road to Damascus, and the roads in the vicinity of Beirút are very good. There is telegraphic communication. 15

Meteorological table.—See Appendix III.

Chart 2633, Markhab to Ras en Nakúra.

The COAST from Ras Beirút (*Lat. 33° 54' N., Long. 35° 28' E.*) trends southward 13 miles, to Ras Dâmur, and is a long, nearly straight, sandy beach. A well cultivated, rich plain, and olive groves extend to the foot of the hills, which rise suddenly. Numerous villages and monasteries, picturesquely perched, dot their sides amidst vineyards and mulberry groves. Within Ras Dâmur is a remarkable mountain and valley, which divides the high land running parallel to the coast. 25

Nahr el Dâmur (ancient Tamyras), which flows into the sea $1\frac{1}{2}$ miles northward of Ras Dâmur, rises in the high mountainous district of Bhamdun and the higher ranges of the Lebanon, and descends through the Wadi el Kadi, a foaming torrent in winter and during the melting of the snow, but a sluggish stream in summer. 30

The coast from Ras Dâmur trends southward, and is a sand beach nearly to Ras Jedra, distant $2\frac{1}{2}$ miles; it then continues southward $2\frac{3}{4}$ miles, to Ras Rumeileh, and becomes more rocky and barren, with a few scattered villages on the tops of the ridges. 35

Plan 2794, Saida.

SAIDA (ancient Sidon) is situated on the north-west slope of a rocky promontory nearly 3 miles south-south-west of Ras Rumeileh, the sandy beach between falling back a little to the eastward.

Nahr el Awali flows into the sea nearly $1\frac{2}{10}$ miles southward of Ras Rumeileh, and its entrance is marked by plane trees on each side, and also by the surf, which generally breaks on the bar. If watering from the river, there is anchorage in about 9 fathoms water, with the entrance bearing about 100° true, distant $4\frac{1}{2}$ cables. 40

General charts 2633, 2606, 2158b, 449.

Plan 2794, Saida. Var. 0° 15' W.

Firefly rock, about 7 cables west-south-westward from Nahr el Awali mouth, is a rocky patch with $4\frac{1}{4}$ fathoms water, one cable long east and west, and half a cable wide.

- 5 **Clearing marks**.—Ras Surafend well open westward of Jezireh, 200° true, leads nearly $1\frac{1}{2}$ cables westward, and the whole of Burj al Maisa open eastward of the bridge connecting Kalat al Bahr to the shore, about 191° true, leads close eastward of the rock.

- Jezireh** (*Lat. $33^\circ 34' N.$, Long. $35^\circ 21' E.$*), the southern end of
10 which is situated $2\frac{3}{4}$ cables north-westward from the eastern of the rocks forming the ancient port, is a quarter of a mile long north and south, narrow, and about 20 feet high. View at this page. A rocky spit, with 2 fathoms water, extends $1\frac{1}{4}$ cables northward, and a similar spit, with $1\frac{3}{4}$ fathoms at its extreme, extends $1\frac{1}{2}$ cables south-
15 south-westward, from the island.

There are depths of $3\frac{3}{4}$ fathoms and less water within $1\frac{1}{2}$ cables east-north-eastward of the eastern point of the island.

LIGHTS.—Lights are exhibited from a white house with a red roof, situated 70 yards from the south end of Jezireh.

- 20 **Anchorage**.—The usual anchorage for vessels of 15 feet and less draught is in 4 to 5 fathoms, sand, eastward of Jezireh, which affords shelter from west and south-west winds; merchant vessels generally make fast to the island. Large vessels anchor in 6 fathoms, with the south-west extreme of Burj al Maisa in line with the middle of Kalat
25 al Bahr 186° true, and the north end of Jezireh about 249° true.

Directions.—When approaching from the westward, Tomat Niha, or Sidon paps, on the Lebanon range, bearing 276° true, view on chart 2633, lead direct to the town.

- When proceeding northward of Jezireh to the anchorage, give the
30 north end of the island a berth of 3 cables, to avoid the rocky spit extending northward from it.

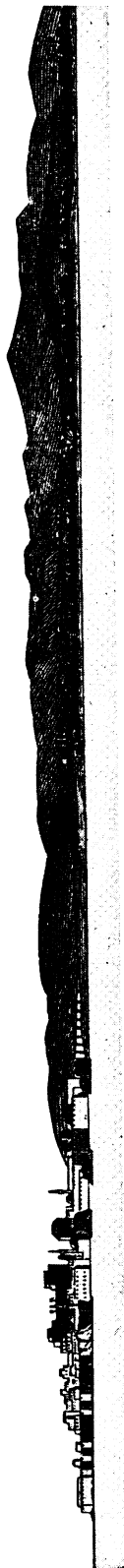
- The southern channel, between the spit off Jezireh and the shallow water off the rocks forming the ancient port, has a clear passage a cable wide, with $3\frac{1}{4}$ fathoms least water. To proceed through from the west-
35 ward, keep the arch at the north end of Dabagha (a tannery) just open northward of Kalat el Bahr, 90° true, until Ras Rumeileh is open eastward of the small rocky islet eastward of Jezireh, 25° true, then steer 50° true, and when the western extreme of Kalat al Bahr is in line with the south-western angle of Burj al Maisa, 181° true, steer
40 about 12° true to the anchorage.

Saida town.—A substantial wall nearly encircles the town, the streets are narrow and crooked, but the houses are generally well built and spacious. Several khans or large magazines, formerly used for the accommodation of merchants and the storing of their goods, still

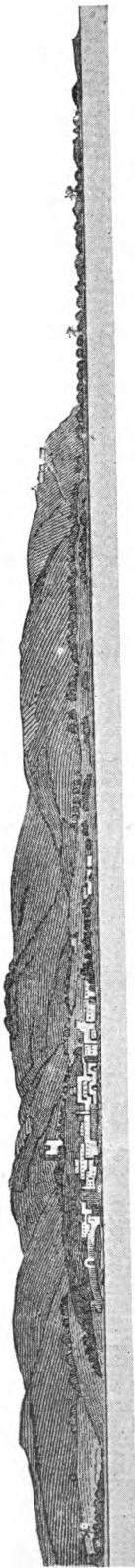
General charts 2633, 2606, 2158b, 449.



Jezireh from the anchorage.
Saida.



South-west bastion.
Citedd.
Manara (East mole head) in line with the Eastern bastion.
Bukhleh.
Akka (Acre).



Old castle bearing 224° true.
Haifa.
St. Elias convent.

Plan 2794, Saida. Var. 0° 15' W.

exist. The largest, a quadrangular structure, having a large court in the centre, with chambers all round, belongs to the French Consulate.

In the south-eastern and highest part of the town is the Burj al Maisa, a citadel surmounted by a ruined tower, said to have been built by Louis IX. in 1253; it is conspicuous from seaward. 5

The suburbs round the town have beautiful gardens and orchards plentifully supplied with water brought from Nahr el Awali. Here the orange, lemon, pomegranate, pear, peach, apricot, and banana flourish. Amidst the gardens numerous foundations of massive structures, with sarcophagi, have been found, and also, immediately outside the Boabet-el-Taht, several columns of a temple. To the south-east, on a small rocky eminence, stood the ancient necropolis, or burying-ground. Here are numerous marble sarcophagi interred in regular lines, and well preserved. 10 15

The ancient port is formed by a low ridge of rocks stretching north-eastward, parallel to the shore, from an ancient mole fronting the western side of the town; on the easternmost rock stands the ruined Kalat al Bahr, which is connected to the shore by a bridge. The port, now filled with sand and rubbish, affords shelter to a few small country boats. 20

The population is about 25,000.

Trade.—Saida exports bitumen, silk, dried figs, oranges, lemons, and cereals, and imports petroleum, sugar, rice, flour, and salt.

Shipping.—In 1913, 43 steam vessels, of an aggregate tonnage of 49,762 tons, and 108 sailing vessels, of 5,058 tons, entered the port. 25

Supplies.—Provisions can be obtained. Good water can be procured from Nahr el Awali during calm weather, but the west and south-west summer breezes frequently throw in a heavy swell, which breaks some distance from the shore. There is no coal. 30

Communication.—There is telegraphic communication by land lines.

Chart 2633, Markhab to Ras en Nakúra.

The COAST from Saida (*Lat. 33° 34' N., Long. 35° 21' E.*) trends south-westward 7 miles, to a point, and is a sandy bay extending 1½ miles south-eastward, with shoal water one mile off its greater portion; the coast then trends southward 12½ miles to Sûr. 35

Caution.—As nearly the whole of this coast is fronted by rocks and shoal water, extending a mile off in places, it should not be approached nearer than 1½ miles, nor within depths of 16 fathoms. 40

Soundings.—From Saida southward to Ras en Nakúra, the 50-fathom line is from 2½ to 5 miles off-shore.

General charts 2633, 2606, 2158b, 449.

Chart 2633, Markhab to Ras en Nakúra. Var. 0° 20' W.

Ras Surafend, 9 miles southward of Saida, is a double-headed bluff cliff, and a small islet and several rocks extend three-quarters of a mile off it. A narrow plain skirts the coast on both sides of the ras, the hills rising in steep, long, table flats from 400 to 500 feet high, on which are several villages amidst trees.

Ras Abu Sait reef.—Ras Abu Sait is situated $3\frac{1}{2}$ miles southward of Ras Surafend. A reef of rocks above water extends southward about three-quarters of a mile from one mile southward of Ras Abu Sait, parallel to, and half a mile distant from, the shore; it is steep-to, and a heavy surf usually breaks on it.

MOUNT HERMON (Jebel esh Sheikh), the southern peak of the anti-Lebanon range, about 30 miles eastward of Ras Surafend, is 9,053 feet high, and its isolated cone, tipped with snow during summer, is conspicuous when open southward of Jebel Rihan, the southern shoulder of the Lebanon range, about 14 miles westward of it.

Nahr el Kasimiyeh (ancient Leontes) flows into the sea 3 miles southward of Ras Abu Sait, but like all the rivers of Palestine has, during summer, a bank of sand across its mouth. It is the third largest river in Syria, and, rising as Nahr Litâny, near Baalbek, soon becomes a considerable stream. After flowing southward nearly 60 miles, through the rich plains of the Buká, it rushes through the Lebanon range in a deep wild gorge, and after passing Kulât esh Shukif (Belfort of the Crusaders) turns westward as Nahr el Kasimiyeh 15 miles to the sea. A stone bridge, with a single arch, spans the river about a mile from the coast, and the road from Saida to Sûr passes over it.

Plan 2903, Sûr.

SÛR (ancient Tyre) (*Lat. 33° 17' N., Long. 35° 11' E.*), formerly an island, but now a peninsula, on which the town is situated, connected to the land by a sandy isthmus, is low and flat.

LIGHTS.—Lights are exhibited from a red stone tower on an old battery at the north-west angle of the town.

Islets and shoals.—Several low islets, surrounded by rocks and shoal water, extend about $6\frac{1}{2}$ cables northward from the town parallel to the shore, and thence rocky uneven bottom, with $3\frac{3}{4}$ fathoms on the outer end, continues $6\frac{1}{2}$ cables further north-north-eastward.

The islets $6\frac{1}{2}$ cables from Sûr are just awash, and those $4\frac{1}{2}$ cables from Sûr are from 4 to 6 feet high.

Anchorage.—The anchorage is eastward of the islets and shoals just mentioned, in from 4 to 6 fathoms, sand, as convenient.

General charts 2633, 2606, 2158b, 449.

Plan 2903, Sûr. Var. 0° 20' W.

Directions.—From the westward, approach with the summit of Mount Hermon bearing 78° true. For the anchorage keep the guard-house on Ras Sidin, $2\frac{1}{2}$ miles north-eastward of the town, in line with the Litâny gorge and one of the summits of Mount Hermon, 82° true, which leads about half a mile northward of the extreme of the shoals extending from the town. When Nebi el Mashuk, a remarkable white building on a rocky mound, 62 feet high, bears 152° true, in a large vessel anchor in 9 to 10 fathoms, sand and weed, or keep this bearing on till the minaret in the town bears 202° true (view on plan 2903); keep the minaret so, and anchor as above directed.

Small country vessels usually enter between the south rock and the northern fort, where there is a passage 400 feet wide, with $2\frac{1}{4}$ fathoms water, and anchor in the bight eastward of the town, in from $3\frac{1}{2}$ to 4 fathoms, sand. This is considered the most secure anchorage on the coast.

Sûr town, which is encircled by an old wall, fast crumbling away, is principally mere hovels, and contains about 7,000 inhabitants; a few of the houses are of a better class, but the streets are narrow and dirty. Confused masses of columns embedded in the solid rock, and pottery, lie strewn in every direction along the western side. On the southern side, without the walls, now the Turkish cemetery, are pits and heaps of rubbish, from which huge green and white marble columns have been brought to light. The remains of a mole extend some distance into the sea, with numerous granite columns along the coast. On the north-east side of the town are the remains of the moles which enclosed the ancient port; they were constructed of hewn stones of considerable size; little, however, remains, and the port, now filled with sand, only affords shelter to the smallest coasting boats.

The town has but one gate, on the eastern side, and at a short distance outside are two wells which supply the town with water. Massive ruins of towers or walls rise above the drifting sand of the isthmus, which here is 20 feet high.

Supplies.—Beef and mutton can be obtained, but vegetables are scarce. Water is procurable from the water-house near the pottery, close eastward of the town.

South bay.—A line of rocks projects nearly 4 cables southward from the south-western point of Sûr peninsula (*Lat. $33^{\circ} 16' N.$, Long. $35^{\circ} 11' E.$*), and a spit, with $2\frac{3}{4}$ fathoms on its extreme, continues about 5 cables further southward. Moles, built on the rocks, once formed a port eastward of them, but now only a few traces of the moles remain; the bay is therefore open to the prevalent south-west winds, and is never used.

General charts 2633, 2606, 2153b, 449.

Plan 2903. Var. 0° 20' W.

Rock.—A rock with $1\frac{1}{2}$ fathoms water lies $3\frac{1}{2}$ cables westward of the extreme of the spit above mentioned; it is the northern part of a bank, which with from $3\frac{3}{4}$ to 5 fathoms water, extends southward
5 half a mile. Ras Surafend, or the outer northern rocks, well open westward of the north-west extreme of Sûr peninsula, about 26° true, leads westward of the bank; at night do not shoal the water to less than 18 fathoms until the lights bear eastward of 28° true.

The coast from Sûr peninsula trends southward $6\frac{1}{4}$ miles to
10 Ras el Abiad, forming a bay which extends about $1\frac{1}{2}$ miles eastward.

Tel Habeish.—There is an artificial flat quadrangular hill, about 10 feet high, about $2\frac{1}{4}$ miles south-south-eastward of the south-western point of Sûr peninsula and a quarter of a mile inland; on its summit is a remarkable square building, intended for a khan, but now
15 deserted. Here once stood ancient Palætyrus. Copious streams flow into the sea hereabouts, and work several water mills.

Ras el Ain (the Fountain head), so called from numerous springs, lies in the plain nearly half a mile southward of this hill. Two of the springs are enclosed by massive masonry, which raises the water
20 considerably above the plain. An aqueduct of Roman architecture 4 miles long conveys the water thence to Sûr town.

Chart 2633, Markhab to Ras en Nakúra.

Ras el Abiad (ancient Promontorium Album) is a bold white cliff, the termination of Jebel Belat range, 2,552 feet high, situated
25 $6\frac{1}{2}$ miles east-south-eastward, on which are the remains of a very ancient temple, with several columns still standing. Idmid, $1\frac{1}{2}$ miles south-eastward of the ras, is a remarkable conical table-topped hill, 1,251 feet high, and Kulat Shemma, one mile further eastward, is a similar hill, 1,408 feet high; on these hills are conspicuous villages
30 built within the walls of an ancient fortress.

The coast from Ras el Abiad trends south-westward $5\frac{1}{2}$ miles, to Ras en Nakúra, and is rocky and bold.

Chart 2634, Ras en Nakúra to El Arish.

Ras en Nakúra (ancient Scala Tyriorium, the Tyrean ladder)
35 (*Lat. $33^\circ 6' N.$, Long. $35^\circ 6' E.$*) is a bold promontory with a round tower on its summit, and is the termination of Jebel Mushakka, the southern side of which descends abruptly to Akka plain. The ras is 261 feet high, and the land rises gradually to a remarkable round-topped hill, 1,070 feet high, 3 miles to the eastward.

Akka plain, situated between Jebel Mushakka on the north and Mount Carmel on the south, is about 20 miles long and 5 broad; it is studded with numerous villages and is most fertile. The land eastward rises gradually to a mountainous range, and Jebel Jurmuk, its

General charts 2633, 2606, 2158b, 449.

Chart 2634, Ras en Nakúra to El Arish. Var. 0° 30' W.

highest peak, situated 16 miles east-south-eastward of Ras en Nakúra, is 4,000 feet high.

The coast from Ras en Nakúra trends southward $10\frac{1}{2}$ miles, to Akka, and is sandy beaches, with a few rocky points. 5

Rocks.—From about three-quarters of a mile south-south-westward of Ras en Nakúra, a rocky patch extends southward one mile, half a mile off-shore, with 5 fathoms water in the channel between; there is a small islet on the southern end of the patch. A rocky patch, with an islet on it, lies about half a mile off Zib village, which is situated on the coast $2\frac{3}{4}$ miles southward of Ras en Nakúra, and is marked by its minarets. Thence patches of rocks, with from $2\frac{1}{2}$ to $4\frac{1}{2}$ fathoms, extend $5\frac{3}{4}$ miles southward, parallel to, and distant one mile from, the shore; there is a patch with $2\frac{3}{4}$ fathoms water about 3 cables off-shore 5 miles southward of Zib. The 100-fathom contour line approaches the northern of these patches to about a mile, but it is about 6 miles distant from the southern patches. The coast should not be approached nearer than 2 miles, nor the water shoaled to less than 15 fathoms. 10 15

Plan 1585, Bay of Acre. 20

BAY OF AKKA or Acre.—The town of Akka or Acre is situated on a peninsula which projects about 4 cables south-westward from the plain; the Bay of Akka lies between the peninsula and Ras el Krum, $6\frac{1}{2}$ miles south-westward, and extends 3 miles south-eastward.

Plan, Acre or Akka, on sheet 1242. 25

LIGHT.—A light is exhibited, at 51 feet above high water, from a white tower, 33 feet high (*Lat. 32° 55' N., Long. 35° 4' E.*), on the rampart southward of Akka town.

Shoals.—Several shoals lie westward of Akka peninsula. A rock with 11 feet water lies 2 cables south-south-westward from the lighthouse; there are depths of from 18 to 30 feet for half a mile further south-south-westward. 30

Vernon reef extends northward nearly $1\frac{1}{2}$ miles from about one mile westward of the lighthouse, and has depths of from 25 to 33 feet, the least water being 6 cables from its southern end. 35

Talbot reef extends south-south-westward about 9 cables from about $1\frac{1}{2}$ miles westward of the lighthouse, and has depths of from 27 to 33 feet. There is a clear passage, half a mile wide, with depths of from 42 to 72 feet between Vernon and Talbot reefs.

A shoal with 25 feet water lies about $1\frac{1}{2}$ miles south-south-westward from the lighthouse; H.M.S. *Foxhound* is stated to have found 3 fathoms on the shoal; but a close examination by H.M.S. *Surprise* failed to find a depth less than 25 feet. The north part of the west 40

General charts 1585, 2634, 2606, 2158b, 449.

Plan, Acre or Akka, on sheet 1242. Var. 0° 30' W.

wall a little open westward of the south part of the wall, about 23° true, leads westward of the shoal.

- Outer anchorage.**—Large vessels usually anchor, in from 9 to 10 fathoms, about a mile south-westward of the lighthouse and eastward of Talbot reef, with the end of the West mole bearing 50° true, and Ras en Nakúra 13° true. The end of the West mole bearing 50° true leads south-eastward of Talbot reef and to the anchorage.

- Inner anchorage.**—Small vessels usually anchor in 33 feet, sand, south-eastward of the lighthouse, with Manara (East mole head) in line with the eastern white bastion 18° true, and the lighthouse 308° true; Manara in line with the bastion leads to the anchorage, passing between the shoal, with 25 feet water, about 1½ miles south-south-westward of the lighthouse, and the beach. View at page 178.

- Ancient port.**—On the eastern side of the town the remains of the moles which formed the ancient port are still visible; these give shelter to small coasting vessels, but it is very shallow and fast filling up. Manara is the name of the molehead (*Lat. 32° 55' N., Long. 35° 4' E.*), on which once stood a small battery.

- Akka or Acre town** is defended by massive fortifications on all sides; the land side having a deep fosse and double rampart. The town is desolate and dirty. Ruins of massive buildings exist and mark the effects of the numerous sieges the town has experienced, and the bombardment in 1840, when a powder magazine exploded and laid it in ruins.

Trade.—Grain from the Hauran, sesame seed, and olive oil are the principal exports.

- Supplies.**—Provisions can be obtained; the bazaars are narrow and small, but well supplied with vegetables. Good water can be procured from the Beirút Water Company.

Coal.—About 200 tons were imported for private use in 1897; there is no later information.

Communication.—There is a railway from Akka to Haifa.

Plan 1585, Bay of Acre.

- The shore** of the bay between Akka and Haifa is sandy, with low sandhills near the sea; within about a mile eastward of Haifa there are many palm trees and gardens. The 5-fathom contour line, within which the water quickly shoals, is from 3 to 5 cables off-shore.

- A bank with 5 and 4½ fathoms water extends, about 1½ miles off-shore, from 2½ miles to 3 miles south-south-westward of Akka peninsula.

Nahr el Mukata (River Kishon).—The tributaries of this river rise near Jebel Tûr (Mount Tabor), 21 miles east-south-eastward of

General charts 1585, 2634, 2606, 2158b, 449.

Plan 1585, Bay of Acre. Var. 0° 30' W.

Haifa, and Mount Gilboa, 27 miles south-eastward of Haifa, and flows through the great Esdraelon plain, uniting about 15 miles from Haifa; the river receives other tributaries from each side, but these as well as the river usually dry in summer, and the only water which permanently flows to the sea is received from numerous springs on the eastern slopes of Mount Carmel, where the river assumes a very tortuous course and enters the sea $1\frac{1}{2}$ miles eastward of Haifa. The water is brackish and unsuitable for domestic purposes. The mouth of the river is shallow and a heavy surf usually breaks across the bar.

Plan, Bay of Haifa, on sheet 1242.

HAIFA or Khaifa (ancient Sycaminum) (*Lat. 32° 49' N., Long. 35° 0' E.*) is situated on the south-western shore of the Bay of Akka on one of the spurs of Mount Carmel.

LIGHT.—A light is exhibited from a white mast surmounting a tower of the old castle on the shore in front of the town.

Marks.—A solitary sandhill, 30 feet high, $11\frac{1}{2}$ cables eastward of the railway pier; a factory, with a black chimney, about half a mile eastward of the same pier; and a large four-storied house, with a red roof, near the top of Mount Carmel, about 8 cables south-westward from the town, are conspicuous. A large iron building was erected in 1913 on the railway pier.

Anchorage.—There is safe anchorage off Haifa during summer, in about 36 feet water, sand, with the end of the railway pier bearing 207° true, distant about 6 cables, and the extreme of the land south-eastward of Ras el Krum 299° true, or in about 45 feet water with the end of the railway pier bearing 188° true, distant about one mile. At night, caution is necessary in approaching the anchorage, as coasting vessels frequently anchor about half a mile off-shore, and do not carry anchor lights.

Haifa town is oblong in shape; the houses generally are built of stone, and the streets are narrow, and during the rainy season become rivers of mud and filth. There is a tolerably large settlement of Germans here; they have contributed largely to the rising prosperity of the place, and their houses, which are surrounded by good gardens, are on the west side of the town. The population of Haifa is about 30,000. View at page 178.

Piers.—The railway pier, eastward of the town, extends northward 380 yards, with a width of about 50 yards; there is a depth of 12 feet at its end, which is in bad condition, and should be avoided by steamboats. There are two cranes on the pier, the larger of

General charts 1585, 2634, 2606, 2158b, 449.

Plan, Bay of Haifa, on sheet 1242. Var. 0° 30' W.

which will lift 2 tons. The best landing in smooth water appears to be on the eastern side of the pier inside the coal store.

The town pier, just westward of the railway pier, is almost
5 destroyed, only the root remaining, alongside which there is not sufficient water for steamboats; approach to it is dangerous owing to the presence of pieces of iron. The bay between the railway and town piers is rapidly filling up.

There is a small stone pier three-quarters of a mile north-westward
10 of the castle.

Trade.—The exports consist of cereals, sesame, olive oil, soap, wine, charcoal and hides. There is a soap manufactory and flour mills.

Shipping.—In 1913, 467 steam vessels, of an aggregate tonnage
15 of 793,380 tons, and 564 sailing vessels, of 11,087 tons, entered the port of Haifa.

Supplies.—Meat, vegetables, and bread are plentiful. Fish can be obtained in large quantities by use of the seine, and turtle are often very numerous about here. Good water is procured from wells
20 in the gardens outside the town. The water supplied in casks is brackish.

Coal.—About 20,000 tons of coal are imported annually for the Hedjaz railway company, which keeps about 5,000 tons in stock, but the amount varies; another firm keeps about 400 tons in stock. There
25 are 26 lighters of from 12 to 20 tons, and 22 of from 20 to 50 tons, also one tug. From 150 to 200 tons can be loaded in 24 hours. There is no coal wharf.

Communication.—There is a railway to Akka, and also the Hedjaz railway to Damascus. There is telegraphic communication by
30 land lines.

The shore of the Bay of Haifa trends north-westward $1\frac{1}{2}$ miles from the town to Ras el Krum. The 3-fathom contour line is from $1\frac{1}{2}$ to 3 cables off it.

Ras el Krum (*Lat. 32° 50' N., Long. 34° 59' E.*) is the northern
35 end of the flat plain extending from the base of Mount Carmel. A stone windmill stands about 2 cables southward of the ras. The ancient Sycaminum was probably situated on the plain southward of the ras.

Plan 1585, Bay of Acre.

40 **The coast** from Ras el Krum trends west-south-westward $1\frac{1}{2}$ miles to Tell es Semakh, a remarkable low peak, and shoal water extends north-westward from it to Spartan and Carmel reefs.

General charts 1585, 2634, 2606, 2158b, 449.

Plan 1585, Bay of Acre. Var. 0° 30' W.

CAPE CARMEL, nearly a mile west-south-westward of Ras el Krum, is the north-western extreme of a fine bold promontory; the convent of St. Elias is situated about $2\frac{1}{2}$ cables, and Mount Carmel lighthouse about $1\frac{1}{2}$ cables within, and near the summit of, the cape. 5

LIGHT.—A light is exhibited, at 490 feet above high water, from a white stone tower, about a cable north-north-westward of St. Elias convent.

Mount Carmel, so named from Carmel, “the park or fruitful field,” is a table ridge, extending 12 miles south-eastward from the cape, and attains a height of 1,861 feet. El Mohraka, the south-eastern peak of the ridge, is the supposed site of Elijah’s sacrifice, and also the confusion of Baal’s prophets. 10

Spartan reef, a patch with $2\frac{3}{4}$ fathoms least water, and from 3 to $4\frac{1}{2}$ fathoms around, lies nearly one mile north-westward of Ras el Krum; the water to the northward deepens gradually to 15 fathoms, sand. 15

Carmel reefs, one mile west-south-westward of Spartan reef, are several rocky heads with from $2\frac{1}{2}$ to 5 fathoms water, extending nearly $1\frac{1}{2}$ miles north-north-westward from Tell es Semakh. The water northward of the reefs gradually deepens to 15 fathoms, sand, but to the westward it deepens quickly to 12 fathoms. 20

Directions.—Athlit high ruined tower open eastward of Khushmid Maher (page 188), 181° true, or the extreme of land to the southward, 181° true, leads westward of Carmel reefs. Akka citadel in line with the south peak of Jebel Sasa, bearing 66° true, leads $1\frac{1}{2}$ miles northward of Carmel and Spartan reefs (views on plan 1585). When the town of Haifa is open eastward of Ras el Krum, steer for the anchorage. The south extreme of the town of Akka in line with the south part of Mount Hermon, 61° true, also leads about half a mile northward of the reefs. 25 30

At night, from the southward, when rounding Carmel and Spartan reefs, do not shoal the water to less than 18 fathoms, until the light at Akka bears 61° true; keep the light on that bearing, and when Mount Carmel light bears 158° true, steer eastward until that light bears 211° true, and the light at Haifa 171° true, when steer south-eastward for the anchorage. 35

Chart 2634, Ras en Nakúra to El Arish.

The coast from Tell es Semakh (*Lat. $32^\circ 50' N.$, Long. $34^\circ 57' E.$*) trends southward, and is a sandy beach, $7\frac{1}{4}$ miles to Athlit; ledges of rocks with $4\frac{1}{2}$ to 5 fathoms water run parallel to the beach, and nearly a mile off-shore, the greater portion of the distance. 40

General charts 2634, 2606, 2158b, 449.

Plan, Athlit, on sheet 1847. Var. 0° 30' W.

Athlit (ancient Castellum Peregrinorum) stands on a rocky promontory, having on its southern side a small bay open north-westward, which was the ancient port. Extensive ruins encircle the miserable village situated amongst massive foundations and vaulted substructures of the time of the Crusaders, the Gothic and groined arches still remaining complete. A high square tower, 109 feet above the sea, is conspicuous.

Chart 2634, Ras en Nakúra to El Arish.

The coast from Athlit trends southward nearly 6 miles to Tantura, and is rocky with small sandy bays; there is a low rugged ridge on which are Surafend and Kefr Lam villages, about half a mile inland. Tantura (ancient Dor) is a small village of some thirty houses situated on the sandy beach inside some black rocky islets. On a rocky mound northward of the village are the foundations of massive buildings; a tall pillar on the summit of the mound is fast crumbling away, but is conspicuous; here are rock tombs, fragments of columns, and mounds of rubbish.

On the south side, inside the islets, was the ancient port, where boats now shelter off the village.

The coast from Tantura trends southward, and is a sandy beach, $6\frac{1}{2}$ miles to Kaisariyeh; Hammam islet, close off the beach, $3\frac{1}{2}$ miles from Tantura, is small, black and rocky. Within the beach is a partially cultivated plain abutting Khushmid Maher, which is a cliffy table-topped hill, 457 feet high, with a tree on its summit, situated $4\frac{1}{2}$ miles southward of Tantura and $1\frac{1}{2}$ miles inland; from this hill a ridge trends south-eastward, and southward of it is the great plain of Sharon.

Plan, Kaisariyeh, on sheet 1847.

Kaisariyeh (ancient Cæsarea) (*Lat. 32° 30' N., Long. 34° 53' E.*) was once the capital and principal seaport of Palestine; the ancient port is now filled and the immense moles constructed by Herod the Great do not exist. Nothing now marks the site of the moles which, according to Josephus, enclosed a space nearly equal to the Piræus of Athens. The ruins of a fortress on the southern side of the ancient port alone mark the spot that appears to have been part of the mole. A little to the northward are numerous granite columns in the sea, the ruins of a landing place, and from these columns the ruins of an ancient mole, awash in places, extend $1\frac{1}{2}$ cables north-westward. A double aqueduct runs northward and the arches are visible above the sand drift. A fortress of a quadrilateral form, with towers at regular intervals, encloses a mass of ruins.

Near the middle of the small shingly bay are the remains of a Christian church, the buttresses of which still stand, and from a dis-

General charts 2634, 2606, 2158b, 449.

Plan, Kaisariyeh, on sheet 1847. Var. 0° 40' W.

tance have the appearance of pillars. Further southward, outside the present fortress, is the probable site of one of its theatres, but only its circular form remains. The ancient city extended far beyond the present enclosed quadrilateral columns, and portions of foundations, 5
evidently of walls, but now overgrown with bushes, mark its contour; the site is ploughed over and sown at certain seasons by the Bedawin.

Anchorage.—There is anchorage about half a mile off Kaisariyeh, in 10 fathoms, sand, during summer.

Chart 2634, Ras en Nakúra to El Arish.

10

The coast from Kaisariyeh trends south-south-westward 28 miles, to Yafa, and is red cliffs, with a sandy beach at their base, but for about 2 miles northward of Yafa it is undulating sandhills, 40 to 50 feet high.

Arsuf (ancient Apollonia), on the coast, 19 miles from Kaisariyeh, 15
is situated on a conical hill within the cliff, and marked by one minaret. About 6 cables southward is the Nebi el Haram, white and conspicuous; only a few ruins, with the traces of a small fort at its base, remain.

Plan, Yafa anchorage, on chart 2634.

20

Abd en Nebi, a ruined building of yellow stone, 89 feet above the sea, lies on the coast about 7 miles southward of Arsuf.

Yafa (Jaffa).—LIGHT.—A light is exhibited, at 69 feet above high water, from a low quadrangular tower, surmounting a white dwelling, in the south-western part of the town, about 100 yards 25
inland; the lighthouse is not noticeable.

Anchorage.—There is anchorage in about 10 fathoms, with the French convent bearing 168° true, distant 1½ miles, and, in from 8 to 10 fathoms, with the convent bearing 93° true, distant 7 cables, or 30
between these positions. The best position is in 7 fathoms, with the convent bearing 116° true, distant 6 cables.

The anchorage is very uncomfortable with westerly winds, which send in a heavy swell and are accompanied by a current setting northward at a rate of from one to 1½ miles an hour; vessels then roll heavily, and it is advisable to go to sea until the swell goes down. 35

Tides.—It is high water, full and change, at Yafa (*Lat.* 32° 3' N., *Long.* 34° 45' E.), at Xh. 0m.; springs rise 1½ feet.

Plan, Yafa, on sheet 1847.

Yafa town (ancient Joppa or Japho) has occupied an important position at all periods of its history, it being the seaport of Jerusalem from which it is 30 miles distant. 40

General charts 2634, 2606, 2158b, 449.

Plan, Yafa, on sheet 1847. Var. 0° 40' W.

The town (*Lat. 32° 3' N., Long. 34° 45' E.*) is situated within a wall on a conical hill, about 150 feet high, and its whitewashed stone houses, together with the tower of the French convent, which has a flagstaff surmounted by a cross, are conspicuous; view on plan 1847, but it is not now accurate. The spire of the Russian church is conspicuous from the westward; it is situated behind the town and cannot be seen from the anchorage. A minaret about 2 cables eastward of the French convent is also conspicuous; near the minaret is the Municipal hall, a building with a tower, and a spire surmounted by a Turkish crescent.

The population of the town is about 55,000.

Boat harbour.—The harbour (the ancient port) is situated between a sea wall on the north-western side of the town and a fringe of low rocks, and has depths of from 3 to 7 feet, the width varying from about 50 to 100 yards. The entrance is northward of the rocks, and there is also a passage between the rocks about $2\frac{1}{2}$ cables from their northern end. Within the passage is the Custom-house, and a short jetty having steps at its end and sides; there is also a short wharf southward of the Custom-house where lighters land their cargoes in smooth water.

In winter, communication with the town is often stopped for several days together; steam vessels then land their passengers at Haifa.

In bad weather it is preferable to employ native boats for landing; they are said to be well built and skilfully managed.

Trade.—The exports are principally fruit (oranges and water melons), grain, sesame, soap, wines and spirits, the former, owing to the rich gardens surrounding the town, is abundant, and the imports, coal, cotton manufactures, coffee, rice, salt, sugar, flour, petroleum, hardware, iron and ironwork, cloth and timber. In 1913 the total value of the exports was £745,413, and that of the imports was £1,312,659.

Shipping.—In 1913, 665 steam vessels, of an aggregate tonnage of 1,160,315 tons, and 676 sailing vessels, of an aggregate tonnage of 16,166 tons, entered the port; there were 170 British steam vessels of an aggregate tonnage of 270,361 tons.

Supplies are cheap and abundant; water is supplied from springs and wells, but it is difficult to obtain.

Coal.—About 7,300 tons of coal and patent fuel are imported annually, and about 3,000 tons are usually in stock; coaling is performed by lighters, of which there are 30 of about 8 to 10 tons each, and coal can be put on board at the rate of about 500 tons a day.

General charts 2634, 2606, 2158b, 449.

Plan, Yafa, on sheet 1847. Var. 0° 40' W.

Communication.—There is a railway to Jerusalem, the trains taking about 3½ hours, and telegraphic communication with Europe and Egypt. The caravan route from Beirút, Saida, Haifa, and Kaisariyeh passes through Yafa. 5

Barometer.—According to observations made during the years 1880-89 inclusive, the mean annual height of the barometer at Sarona, about 2 miles north-eastward of Yafa (*Lat. 32° 3' N., Long. 34° 45' E.*) is 29·85 inches; the mean monthly height in July and August, the lowest, is 29·68 inches; and, in January, the highest, 29·96 inches. 10

Thermometer.—The mean annual temperature is 67°; the mean monthly temperature in January, the lowest, 54½°; and in August, the highest, 78¾°.

Rainfall.—The mean annual rainfall is 21½ inches; of this amount 18 inches fall from November to February, inclusive. The most rain falls in December and January. 15

Chart 2634, Ras en Nakúra to El Arish.

Plains of Sharon and Philistia extend from Khushmid Maher to Ghuzzeh, about 70 miles to the southward, and to the base of the mountains of Samaria and Judæa, from 8 to 12 miles inland; they are rudely cultivated cornfields and pasture-lands. The plain of Sharon extends from Khushmid Maher to Yebna; that of Philistia from Yebna to Ghuzzeh. 20

The mountains rise from these plains in gentle slopes, the main ridge being about 25 miles inland and from 2,000 to 3,500 feet high. The slopes are studded with numerous villages, while the principal summits are crowned with nebis (tombs), the most conspicuous being Um el Fahm, 13½ miles eastward of Kaisariyeh; Mounts Ebal, 3,375 feet high, and Gerizim, 3,179 feet high, with Sleiman el Farsi, 2,893 feet high, about 22 to 24 miles eastward of Arsuf; Nebi Samwil (ancient Mizpeh), 3,193 feet high, 4 miles north-westward of Jerusalem; Dahar el Salah, 3,430 feet high, 7½ miles south-westward of Jerusalem, and Nebi Núh, 2,911 feet high, 26 miles east-south-eastward of Askelon; the mountain ridge descends abruptly to the plain from the last-mentioned peak. 35

The coast from Yafa trends south-south-westward 26 miles, to Askelon, and is sandhills, interrupted by a few black rocky capes. There is a white minaret, surrounded by a building, 6½ miles southward of Yafa, and three-quarters of a mile inland.

Plan, Port of Yebna (site), on sheet 1847. 40

YEBNA.—Some rocky islets extend parallel to, and about a cable off, the shore, 8 miles from Yafa. On the mainland within the southern extreme of the islets, is a massive masonry work (evidently

General charts 2634, 2606, 2158b, 449.

Plan, Port of Yebna (site), on sheet 1847. Var. 0° 45' W.

Roman), from 15 to 20 feet in height, in ruins, which appears to have been a small fortress; masonry blocks of a similar type extend
 5 along the coast ridge; there is an ancient well on the slope of the hills. These ruins indicate that a town or scala existed here, and the site is probably that of the port of Yebna.

Chart 2634, Ras en Nakúra to El Arish.

Nebi Yunas.—About 7 miles southward of Yebna, on the
 10 southern side of Wádi Sumt, is a conical white sandhill, 188 feet high, surmounted by Nebi Yunas, a conspicuous building.

Askelon (ancient Ascalon) (*Lat. 31° 39' N., Long. 34° 32' E.*).—This ancient city was built in the form of a theatre, with the two
 15 horns abutting on a line of bold cliffs, which rises to the height of about 60 feet directly from the sea; but little of the city now remains.

The walls, which are still visible along the circular ridge, are lying in huge confused masses; near the highest point is a nebi or tomb on the top of a sandhill. Within the enclosed space are gardens and
 20 thick foliage; the beds of onions, as of old (the eschalot was first grown here and named after the city), still flourish luxuriantly.

The small modern village is outside the ancient walls, amidst mulberry trees, but around all is sand.

Anchorage.—There is summer anchorage off Askelon, in 10 fathoms, sand, but it is open to the westward.

The coast from Askelon trends south-westward in a slight curve
 25 48 miles to El Arish, and is a sandy beach, with sandhills at intervals surmounted by nebis; there are a few trees and shrubs south-westward to Ras el Markhab, where vegetation near the coast ceases.

Ghuzzeh town (ancient Gaza) lies 10 miles south-south-westward of Askelon, and about 2 miles inland; it is separated from the
 30 coast by hills of drifting sand, 200 feet high; a few of the high minarets of the town can be seen from seaward. The population is about 30,000.

Sheikh Arduan is a remarkable white building on a peaked sandhill,
 35 214 feet high, about 1½ miles north-north-westward of Ghuzzeh; there are a few trees around. On the beach west-north-westward is a nebi with two domes.

Montar hill, about three-quarters of a mile south-south-eastward of Ghuzzeh, is 314 feet high, and surmounted by a nebi; from a distance westward it shows as a flat table island in the sandy desert.
 40

Anchorage.—The usual anchorage is in about 10 fathoms, sand, with the two white domes of En Nesleh, which are situated on the coast westward of the town, bearing about 118° true, distant 1½ miles. The cargoes, principally grain, for vessels at the anchorage, are taken
 45 off in large boats. From the open situation and the almost constant

General charts 2634, 2606, 2158b, 449.

Chart 2634, Ras en Nakúra to El Arish. Var. 1° 0' W.

heavy surf which rolls in from the westward, many weeks are frequently occupied in loading a vessel.

Tell Ajur (*Lat. 31° 27' N., Long. 34° 22' E.*), 102 feet high, surmounted by a ruin, lies 6 miles south-westward of Ghuzzeh and 5 on the southern side of the entrance to Wádi Ghuzzeh, which is the southern boundary of the plain of Philistia.

Ras el Markhab, 6½ miles south-westward of Tell Ajur, is the southernmost green place on the coast; the ridge inland rises to a height of some 500 feet; there are a few palm trees and Nebi Beni 10 Ismaileh on the summit.

Khan Yunas, 2 miles east-south-eastward of Ras el Markhab, is a village surrounded with gardens and verdure; a solitary palm here is conspicuous.

The coast from Ras el Markhab to El Arish is white sandhills 15 between 200 and 300 feet high, within which is an undulating desert. There is no vegetation near the sea.

Anchorage has been obtained with the palm at Khan Yunas bearing 83° true, distant 5½ miles, and about three-quarters of a mile off-shore. 20

A solitary tree is situated on the summit of a sandhill 17 miles south-westward from Ras el Markhab.

El Arish.—*See page 99.*

Soundings.—Between Cape Carmel and El Arish, a distance of 121 miles, the water shoals gradually within the 50-fathom contour 25 line, which from 5 miles off Cape Carmel gradually increases its distance from the land until off El Arish, where it is 18 miles from the coast.

Current.—The current on the coast of Syria generally sets northward, and its rate is greatly increased by the south-westerly winds 30 which prevail in May and June.

The country vessels proceeding southward frequently anchor off the coast between Cape Carmel and El Arish during summer when the current is strong and the wind light.

General charts 2573, 2606, 2158b, 449.

APPENDIX I.
PARTICULARS OF DRY DOCKS, PATENT SLIPS, &c.

Port.	Name of Dock.	Length.		Breadth of Entrance.	Depth at M.H.W.S.		Springs rise.	Lifting Power.	Date Built.	Remarks.
		On Blocks.	Over all.		On Sill.	On Blocks.				
Alexandria	Gabari	Feet 500	Feet 520	Feet 64	Feet 22	Feet 22	Feet 1	Tons —	1904	
Port Said	Floating	—	294½	60½	21½	18	1½	3,000	1904	
"	Patent slip, No. 1 ..	150 (cradle)		Particulars unknown.			1½	300	—	
"	" No. 2 ..	150 (cradle)		Particulars unknown.			1½	300	—	

APPENDIX II.

LIST OF PRINCIPAL PORTS, SHOWING PARTICULARS
OF DEPTHS, &c.

Port.	Depth at M.L.W.S. in channel of approach.	Depth at M.L.W.S. in anchorage.	Rise of Tide.		Remarks.
			Spgs.	Nps.	
Acre	Deep water	10 to 5½ fms.	nil	nil	Open anchorage.
Alexandretta	Deep water	13 to 6 fms.	nil	nil	Open anchorage.
Alexandria	35-ft.*	11 to 5 fms.†	1-ft.	¼-ft.	*In Great pass. †Outer harbour.
„	„	25 to 39-ft.	1-ft.	¼-ft.	Inner harbour.
Beirut	Deep water	11 to 36 fms.	nil	nil	Outer anchorage.
„ harbour.	7 fms.	7 to 3 fms.	nil	nil	
Benghazi.....	Deep water	9 to 10 fms.	nil	nil	Outer anchorage.
Famagusta	Deep water	17 fms.	nil	nil	Outer anchorage.
„	7 fms.	7 to 3 fms.	nil	nil	Inside reefs.
„	26-ft.	15 to 24-ft.	nil	nil	Harbour.
Haifa	Deep water	33 to 45-ft.	nil	nil	Open anchorage.
Karaghatch harbour. .	Deep water	10 to 25 fms.	nil	nil	
Larnaka	Deep water	12 to 18 fms.	nil	nil	Open anchorage.
Latakiya	Deep water	8 to 10 fms.	nil	nil	Open anchorage.
Limasol	Deep water	7 to 12 fms.	nil	nil	Open anchorage.
Marmarice harbour ..	Deep water	7 to 20 fms.	nil	nil	
Marsa Matruh	16-ft.	24 to 47-ft.	1-ft.	½-ft.	Small harbour.
Mersina	10 to 6 fms.	6 fms.	nil	nil	Open anchorage.
Port Said	33-ft.	31-ft.*	1½-ft.	—	*Ismail basin.
Saida	Deep water	4 to 6 fms.	nil	nil	Open anchorage.
Sûr	Deep water	10 to 3½ fms.	nil	nil	Open anchorage.
Tripoli:—					
Libia	Deep water	17 to 7 fms.	2-ft.	—	Open anchorage.
„ harbour	3½ fms.	4 to 5 fms.	2-ft.	—	Dredging in progress.
Syria	Deep water	7 to 3½ fms.	nil	nil	Open anchorage.
Yafa	Deep water	10 to 7 fms.	1½-ft.	—	Open anchorage.

APPENDIX III.

PLACE—TRIPOLI (LIBIA). OBS. Δ LAT. 32° 54' N., LONG. 13° 11' E. Height above Mean Sea Level, 56 feet.
METEOROLOGICAL TABLE COMPILED FROM 18 TO 19 YEARS' OBSERVATIONS. (1892-1911.)

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.						AIR TEMPERATURE.						Relative humidity. Scale 0 to 10.		RAIN.			WIND.										Gales. No. of days.	Fog. No. of days.
	Mean.			Absolute.			Mean.			Absolute.			Total fall.	No. of days.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from												
	For month.	Daily range.	Ins.	Max.	Min.	Range.	For month.	Max.	Min.	Range.	Range.						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.				
											Max.	Min.														Range.			
January	-	30-05	-	-	-	-	54	60	48	12	79	35	34	66	4	3-69	11	1-97	Ins.	3	3	2	4	3	6	5	5	-	-
February	-	30-02	-	-	-	-	56	62	49	13	90	37	53	66	3	2-08	6	4-92	Ins.	4	4	2	3	2	4	4	5	-	-
March	-	29-04	-	-	-	-	60	66	53	13	95	40	55	64	3	0-97	5	1-22	Ins.	4	5	4	4	3	3	3	5	-	-
April	-	29-02	-	-	-	-	64	71	58	14	104	45	59	65	3	0-58	3	1-96	Ins.	4	7	3	3	2	3	3	5	-	-
May	-	29-00	-	-	-	-	69	75	62	13	104	49	55	67	3	0-28	2	0-79	Ins.	4	9	4	3	1	3	3	4	-	-
June	-	29-04	-	-	-	-	74	81	68	13	109	57	52	67	1	0-06	0	0-43	Ins.	4	9	5	4	1	1	2	4	-	-
July	-	29-05	-	-	-	-	78	85	72	13	109	62	47	66	1	0-02	0	0-15	Ins.	5	9	5	3	1	2	2	4	-	-
August	-	29-06	-	-	-	-	79	86	73	13	106	64	42	65	1	0-07	0	1-11	Ins.	5	9	5	4	1	2	1	4	-	-
September	-	29-07	-	-	-	-	78	85	71	14	109	61	48	64	1	0-47	1	3-07	Ins.	4	7	5	3	1	4	2	4	-	-
October	-	29-07	-	-	-	-	74	80	67	13	102	53	49	63	3	1-54	4	2-57	Ins.	3	6	4	4	3	3	4	4	-	-
November	-	30-01	-	-	-	-	65	72	59	14	95	42	53	63	3	2-33	6	5-12	Ins.	2	4	3	4	3	5	4	5	-	-
December	-	30-02	-	-	-	-	57	64	51	13	79	39	40	65	4	4-48	11	2-82	Ins.	2	2	1	4	4	8	6	4	-	-
Means	-	29-07	-	-	-	-	67	74	61	13	-	-	-	65	3	-	-	-	Ins.	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ins.	44	74	43	43	25	44	39	53	-	-
Absolute values	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ins.	-	-	-	-	-	-	-	-	-	-
No. of Yrs. Obsd.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ins.	-	-	-	-	-	-	-	-	-	-

Authority:—F. Eredia, Climatologia di Tripoli e Bengasi. Rome, 1912.

Meteorological Office,
November, 1913.

PLACE—BENGHAZI. OBS. Δ LAT. $32^{\circ} 7' N$, LONG. $20^{\circ} 3' E$. Height above Mean Sea Level, 33 feet.
METEOROLOGICAL TABLE COMPILED FROM 4 TO 19 YEARS' OBSERVATIONS. (1886-1905.)

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.					AIR TEMPERATURE.						Relative humidity.		RAIN.			WIND.								Fog. No. of days.	Gales. No. of days.	
	Mean.		Absolute.			Mean.			Absolute.			Cloud amount, Scale 0 to 10.	Total fall.	No. of days.	Max. fall in 24 hours.	Number of days from											
	For month.	Daily range.	Max.	Min.	Range.	Max.	Min.	Range.	Mean.							N. to S.											
									For month.	Max.	Min.					Range.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.			Calm.
January	Ins.	Ins.	Ins.	Ins.	Ins.	°	°	°	°	°	°	°	%	Ins.	12	Ins.	5	1	2	2	10	2	7	2	—	—	
February	29-82	—	—	—	—	56	60	51	9	68	46	22	78	4	3-05	—	—	5	2	2	3	7	2	5	2	—	—
March	29-77	—	—	—	—	58	64	53	11	75	44	31	74	3	1-47	8	—	5	2	2	3	7	2	5	2	—	—
April	29-71	—	—	—	—	62	68	56	12	89	48	41	74	3	0-73	6	—	9	1	2	2	7	1	6	3	—	—
May	29-69	—	—	—	—	66	73	60	13	89	52	37	66	3	0-14	2	—	12	1	1	2	6	1	4	3	—	—
June	29-66	—	—	—	—	72	78	66	12	101	56	45	71	3	0-10	2	—	13	2	1	1	6	1	4	3	—	—
July	29-66	—	—	—	—	75	81	69	12	104	63	41	73	1	0-02	1	—	18	1	1	1	3	1	2	3	—	—
August	29-69	—	—	—	—	78	83	73	10	91	67	24	84	1	0-01	0	—	25	1	0	0	1	0	0	4	—	—
September	29-69	—	—	—	—	79	84	74	10	98	70	28	80	1	0-00	0	—	22	1	1	0	1	0	2	4	—	—
October	29-77	—	—	—	—	78	84	72	12	94	63	31	74	1	0-12	2	—	16	1	1	1	4	1	3	3	—	—
November	29-77	—	—	—	—	75	81	68	13	99	61	38	73	2	0-31	4	—	11	1	2	3	7	1	3	3	—	—
December	29-79	—	—	—	—	66	72	60	12	81	45	36	76	3	2-11	7	—	6	1	2	3	9	2	5	2	—	—
	29-79	—	—	—	—	60	64	55	9	76	46	30	77	4	2-61	13	—	4	0	2	4	9	3	7	2	—	—
Means	29-73	—	—	—	—	69	74	63	11	—	—	—	75	3	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10-87	57	—	146	13	17	22	70	15	48	34	—	—
Absolute values	—	—	—	—	—	—	—	—	—	—	104	44	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No. of Yrs. Obsn.	5	—	—	—	—	—	—	—	—	—	—	—	—	4	14	19	—	—	—	—	—	—	—	—	—	—	—

Authority:—F. Eredia, Climatologia di Tripoli e Bengasi.

Meteorological Office,
November, 1913.

PLACE—PORT SAID. OBS. Δ LAT. $31^{\circ} 16' N.$, LONG. $32^{\circ} 18' E.$ Height above Mean Sea Level, 14 feet.
 METEOROLOGICAL TABLE COMPILED FROM 9 TO 20 YEARS' OBSERVATIONS. (1886-1905.)

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.				AIR TEMPERATURE.				Relative humidity.		RAIN.		WIND.										Gales. No. of days.	Fog. No. of days.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Mean.		Absolute.		Mean.		Absolute.		Scale 0 to 10.		No. of days.	Max. fall in 24 hours.	Number of days from																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	For month.	Daily range.	Max.	Min.	Max.	Min.	Range.	Max.	Min.	Range.			N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
January	Ins. 30-02	—	Ins. —	Ins. —	° 58	° 65	° 15	° 76	° 35	° 41	72	4	0-80	6	—	Ins.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—</

Authorities:—"Annales du Bureau Central Météorologique de France."

Buchan's "Challenger" Report.

Meteorological Office,
November, 1913.

PLACE—FAMAGUSTA. OBS. Δ LAT. $35^{\circ} 7' N.$, LONG. $33^{\circ} 57' E.$ Height above Mean Sea Level, 34 feet.
METEOROLOGICAL TABLE COMPILED FROM 20 YEARS' OBSERVATIONS. (1891-1910.)

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and Lat. 45°.				AIR TEMPERATURE.						Relative humidity.			RAIN.			WIND.										Gales. No. of days.	Fog. No. of days.	
	Mean.		Absolute.		Mean.			Absolute.			Range.	No. of days.	Total fall.	Max. fall in 24 hours.	Mean force, Beaufort scale.	Number of days from													
	For month.	Daily range.	Max.	Min.	Range.	Max.	Min.	Range.	N.	N.E.						E.	S.E.	S.	S.W.	W.	N.W.	Calm.							
January	Ins.	Ins.	Ins.	Ins.	°	°	°	°	°	°	°	°	°	Ins.	—	3	5	4	1	2	2	8	6	0	3-4	—			
February	30-05	—	—	—	51	60	41	19	77	19	58	78	4	2-81	12	2-62	—	2	4	3	1	2	3	7	6	0	2-5	—	
March	30-00	—	—	—	52	63	41	22	78	22	56	78	4	1-93	10	1-41	—	2	5	2	1	2	4	8	7	0	3-1	—	
April	29-94	—	—	—	55	66	43	23	83	20	63	76	4	1-61	8	1-83	—	2	5	4	1	2	4	7	5	0	2-1	—	
May	29-92	—	—	—	61	73	48	25	89	26	63	72	3	1-03	5	1-80	—	2	5	6	2	2	4	6	4	0	1-3	—	
June	29-88	—	—	—	68	81	56	25	101	37	64	68	3	0-67	4	0-95	—	1	4	7	2	2	4	5	4	1	0-8	—	
July	29-83	—	—	—	75	88	62	26	103	46	57	65	1	0-15	1	0-02	—	1	4	7	2	3	6	4	3	1	0-2	—	
August	29-72	—	—	—	81	93	68	25	102	52	50	66	1	0-00	0	0-05	—	2	4	5	1	3	5	6	4	1	0-1	—	
September	29-75	—	—	—	81	93	69	24	103	52	51	65	1	0-01	0	0-11	—	3	3	3	1	1	4	9	6	0	0-7	—	
October	29-87	—	—	—	76	89	63	26	103	48	55	64	1	0-15	1	0-50	—	2	4	2	1	1	2	10	9	0	0-8	—	
November	29-97	—	—	—	70	83	57	26	96	33	63	68	2	1-04	4	2-00	—	3	5	3	1	2	2	8	6	0	1-6	—	
December	30-03	—	—	—	61	73	50	23	87	24	63	74	4	3-23	7	5-45	—	3	5	5	1	2	2	7	6	0	2-3	—	
December	30-05	—	—	—	54	64	45	19	77	20	57	79	4	3-61	10	2-71	—	3	5	5	1	2	2	7	6	0	2-3	—	
Means	29-92	—	—	—	65	77	54	23	—	—	—	71	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	16-24	62	—	—	—	—	—	—	—	—	—	—	—	3	18-9	—
Absolute values	—	—	—	—	—	103	19	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Authority:—Cyprus Blue Books, 1891-1910.

Meteorological Office,
November, 1913.

PLACE—BEIRÚT. OBS. Δ LAT. $33^{\circ} 54' N.$, LONG. $35^{\circ} 28' E.$ Height above Mean Sea Level, 108 feet.
 METEOROLOGICAL TABLE COMPILED FROM 30 YEARS' OBSERVATIONS. (1876-1905.)

MONTH.	BAROMETER. Reduced to 32° F., mean sea level, and lat. 45°.						AIR TEMPERATURE.						Relative humidity.			RAIN.			WIND.										Fog. No. of days.	
	Mean.			Absolute.			Mean.			Absolute.			Cloud amount, Scale 0 to 10.			No. of days.			Number of days from										Gales. No. of days.	
	For month.			Range.			Range.			Range.			Total fall.			Max. fall in 24 hours.			Mean force, Beaufort scale.										Gales. No. of days.	
	Ins.	Ins.	Ins.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Ins.	%	Ins.	Ins.	Ins.	Ins.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	—	—	—
January	30.03	30.49	29.40	1.09	56	62	49	13	79	35	44	69	6	7.37	15	3.54	—	—	3	3	3	7	3	6	2	1	3	0.8	—	—
February	29.99	30.43	29.49	0.94	57	64	50	14	83	36	47	71	6	5.97	14	3.54	—	—	2	3	2	5	3	7	2	1	3	0.2	—	—
March	29.93	30.33	29.35	0.98	60	67	53	14	97	36	61	71	5	3.80	11	1.97	—	—	4	4	2	2	2	9	3	1	4	0.6	—	—
April	29.89	30.23	29.44	0.79	65	72	58	14	97	43	54	72	4	2.02	6	2.84	—	—	4	4	1	1	1	11	3	2	4	0.0	—	—
May	29.88	30.24	29.44	0.80	70	78	63	15	102	50	52	72	3	0.66	3	1.38	—	—	4	4	1	0	1	10	4	3	4	0.1	—	—
June	29.83	30.09	29.54	0.55	76	83	69	14	100	56	44	70	2	0.19	1	2.36	—	—	3	2	0	0	1	14	5	2	3	0.0	—	—
July	29.74	29.97	29.51	0.46	80	88	72	16	98	64	34	68	2	0.02	0	0.39	—	—	1	1	0	0	1	18	6	1	3	0.1	—	—
August	29.76	29.95	29.57	0.38	81	89	74	15	99	62	37	66	2	0.02	0	0.28	—	—	2	1	0	0	2	13	7	2	4	0.0	—	—
September	29.86	30.18	29.02	0.56	79	86	72	14	99	60	39	64	2	0.29	2	2.09	—	—	5	3	1	0	1	8	6	3	3	0.2	—	—
October	29.84	30.21	29.07	0.54	75	82	68	14	101	52	49	66	3	1.91	5	5.47	—	—	7	6	1	1	2	6	2	2	4	0.1	—	—
November	29.99	30.46	29.53	0.93	67	73	60	13	94	41	53	67	4	5.32	10	3.74	—	—	4	4	2	4	3	5	2	1	5	0.4	—	—
December	30.01	30.47	29.51	0.96	60	66	54	12	84	30	54	69	5	7.69	14	3.07	—	—	2	3	3	6	4	6	2	1	4	0.6	—	—
Means	29.90	—	—	—	69	76	62	14	—	—	—	69	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	—	—	—	—	—	—	—	—	—	—	—	—	35.26	81	—	—	—	—	40	38	16	26	24	113	44	20	44	3.1	—	—
Absolute values	—	30.49	29.35	1.14	—	—	102	30	72	—	—	—	—	—	—	5.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Authority:—"Jahrbücher der K.K. Central Anstalt für Meteorologie, Vienna."

Meteorological Office,
 November, 1913.

APPENDIX IV.

MAGNETIC OBSERVATION PLACES.

Reliable magnetic observations have been made at the following places (spots), which should, whenever practicable, be re-occupied when making future observations.

Alexandria	Lat. 31° 11' 30" N. Long. 29° 51' 40" E.	East side of Hole in the wall (boat passage through breakwater); rocks.
Port Said	Lat. 31° 14' 48" N. Long. 32° 18' 26" E.	On Admiralty ground, 150 yards, 240° true, from second bollard from corner near canal.
Karaghatch ..	Lat. 36° 52' 50" N. Long. 28° 25' 35" E.	Half a mile, 350° true, from centre of West islet, and 3 yards, 180° true, from a pine-tree stump situated just above high-water mark near the east bank at the entrance to a stream.
Limasol	Lat. 34° 40' 40" N. Long. 33° 2' 40" E.	On beach, one cable, 209° true, from eastern corner of conspicuous house. Pier flagstaff 227° 57' true. Spire 293° 54' " Peak 344° 53' " Chimney 48° 7' "
Alexandretta ..	Lat. 36° 35' 41" N. Long. 36° 9' 10" E.	Lighthouse bearing 240° true, distant 150 yards; sand and stones.
Haifa	Lat. 32° 49' 12" N. Long. 35° 1' 52" E.	On the west side of the entrance to Nahr el Mukata (River Kishon). Mount Carmel lighthouse 282° 4' true. Tower at Acre 16° 22' " ≥ House 185° 57' "

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